HCD-H490

SERVICE MANUAL

US Model
Canadian Model
UK Model

AEP Model

E Model
Australian Model

CD Section	Model Name Using Similar Mechanism	NEW
	CD Mechanism Type	CDM28-5BD10D
	Base Unit Name	BU-5BD10D
Tape deck Section	Model Name Using Similar Mechanism	NEW
	Tape Transport Mechanism Type	TCM-180VW-N6

SPECIFICATION

AUDIO POWER SPECIFICATIONS (For the Customers in the USA)
POWER OUTPUT AND TOTAL HARMONIC DISTORTION:
With 6 ohm loads, both channels driven, from 60 Hz — 20 kHz; rated 35 watts per channel minimum RMS power, with no more than 1% total harmonic distortion from 250 miliwatts to rated output.

Tuner section
FM stereo. FM/AM superheterodyne tuner

FM tuner section
Tuning range For East European model
65.0 — 74.0 MHz
87.5 — 108.0 MHz
For other countries models
87.5 — 108.0 MHz
Antenna FM lead antenna (for HCD-H450M)
Telescopic antenna (for HCD-H450)
Antenna terminals
75 ohm unbalanced
Intermediate frequency
10.7 MHz

AM tuner section
Tuning range For US, Canadian model
AM: 530 — 1,710 kHz
For Italian model
AM: 522 — 1,611 kHz
For German model
AM: 531 — 1,602 kHz
For AEP, East European, UK model
MW: 531 — 1,602 kHz
LW: 153 — 279 kHz
For other countries models
MW: 531 — 1,602 kHz (at 9 kHz step)
530 — 1,710 kHz (at 10 kHz step, except for Middle Eastern model)
SW: 5.950 — 17.900 MHz
Antenna AM loop antenna
External antenna terminals
Intermediate frequency
450 kHz

Amplifier section
Countinuous RMS power output
16 + 16 watts (6 ohms at 1 kHz, DIN)
20 + 20 watts (6 ohms at 1 kHz, 5% THD)
For AEP, UK, German, East European, Italian model
Peak music power output
80 + 80 watts (6 ohms at 1kHz, 10% THD)
For US, Canadian, E, Saudi Arabia, Australian, Malaysia, Sigapore model
Peak music power output
200 watts (6 ohms at 1kHz, 10% THD)
Input
For E, Saudi Arabia, Australian, Malaysia, Sigapore model
MIX MIC (minijack)
sensitivity 1 mV,
impedance 600 ohms
VIDEO/AUX
sensitivity 450 mV,
impedance 47 kilohms
For AEP, UK, German, East European, latlian model
PHONO (phono jack)
sensitivity 5 mV,
impedance 47 kilohms
For US, Canadian model
VIDEO/AUX
sensitivity 5 mV,
impedance 47 kilohms
Outputs
HEADPHONES (stereo minijack):
accept headphones of 8 ohms or more.
SPEAKERS: accept impedance of 6 to 16 ohms.

Cassette deck section
Recording system
4-track 2-channel stereo

Frequency response
(DOLBY NR OFF)
60 — 13,000 HZ (± 3 dB), using TYPE I cassette (Sony HF-S)
60 — 14,000 Hz (± 3 dB), using TYPE II cassette (Sony UX-S)

— Continued on next page —

MICROFILM

MINI HI-FI COMPONENT SYSTEM

SONY®

HCD-H490/H490M

SONY
SERVICE MANUAL

AEP Model

SUPPLEMENT-1

File this supplement with the service manual.

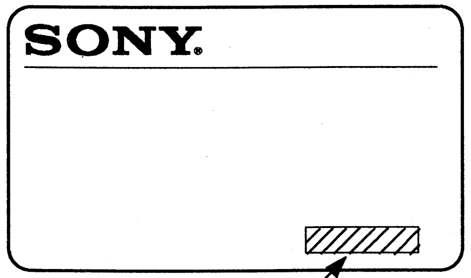
Subject : • CE Type ADDITION

(ENG-95023)

- The contents of this supplement applies the following models in the Identification, so refer to the previous service manual.

MODEL IDENTIFICATION (How to identify CE Type)

— Specification Labels —



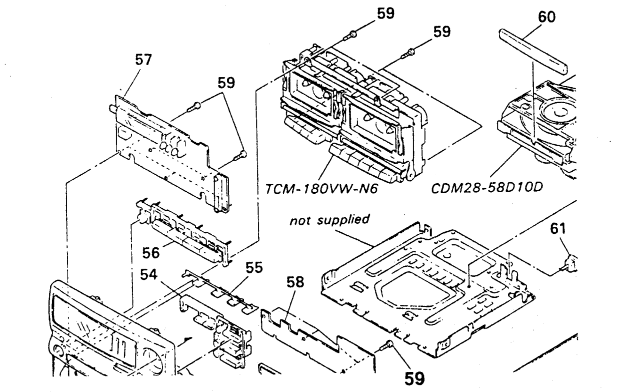
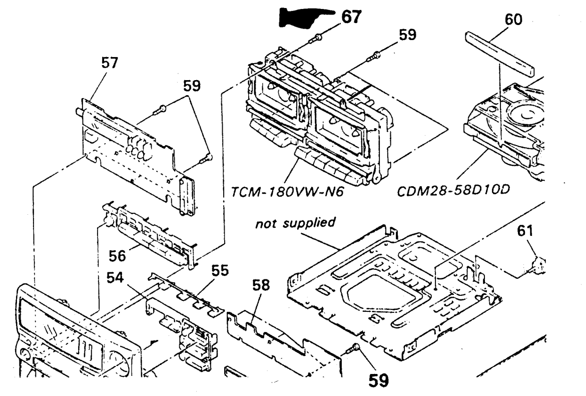
4-976-745-0□ : H490 AEP model
4-976-746-0□ : H490 German model
4-976-747-0□ : H490 Italian model
4-976-748-0□ : H490M AEP model
4-976-749-0□ : H490M German model

NOTE:

- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  G : German model
  IT : Italian model

DIFFERENCE TABLE

☛ : Changed portion

Page	HCD-H490/H490M (Former Type)				HCD-H490/H490M (CE Type)			
	Ref.No	Part No	Description	Remark	Ref.No	Part No	Description	Remark
39	2	A-4361-330-A	LID (B) ASSY, CASSETTE		2	A-4361-317-A	LID (B) ASSY, CASSETTE	
	∗ 8	A-4369-111-A	POWER BOARD, COMPLETE		∗ 8	A-4378-676-A	POWER BOARD, COMPLETE	
	13	4-951-620-11	SCREW (2.6X10), +BVTT		13	4-951-620-01	SCREW (B2.6X8), +BVTP	
40	59	4-951-620-11	SCREW (2.6X10), +BVTT		59	4-951-620-01	SCREW (2.6X8), +BVTP	
	59	4-951-620-11	SCREW (2.6X10), +BVTT		67	4-951-620-31	SCREW (2.6), +BVTP	
	∗ 64	A-4369-107-A	MAIN BOARD COMPLETE (AEP)		∗ 64	A-4378-582-A	MAIN BOARD COMPLETE (AEP)	
	∗ 64	A-4369-115-A	MAIN BOARD COMPLETE	(H490:G, IT/H490M:G)	∗ 64	A-4378-583-A	MAIN BOARD COMPLETE	(H490:G, IT/H490M:G)
	 59 59 60 57 59 TCM-180VW-N6 CDM28-58D10D not supplied 61 56 54 55 58 59				 ☛ 67 59 60 57 59 TCM-180VW-N6 CDM28-58D10D not supplied 61 56 54 55 58 59			

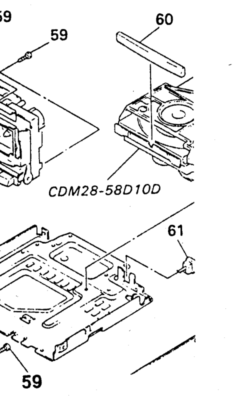
IC PIN FUNCTIONS

- **IC351 TMP87CH46N-410**

Pin No.	Pin Name
1	DATA
2	CLK
3	PLAY
4	SUBQ
5	SQCLK
6	PRGL
7	XLT
8	SCOR
9	PAUSE
10	ICSW
11	AMUTE
12	SCLK
13	LDON
14	—
15	—
16	SENSE
17	TEST
18	RESET
19	X1
20	X2
21	GND
22	VAREF
23	KEYIN0
24	KEYIN1
25	KEYIN2
26	DPCLK
27	DPDAT0
28	DPDAT1
29	DPDAT2
30	DPDAT3
31	EMPH
32	KEYREQ
33	AUBIN
34	AUBOUT
35	LODOUT
36	LODIN
37	OUTSW
38	INSW
39	A-FUNC
40	ADJ
41	AFADJ
42	+5V

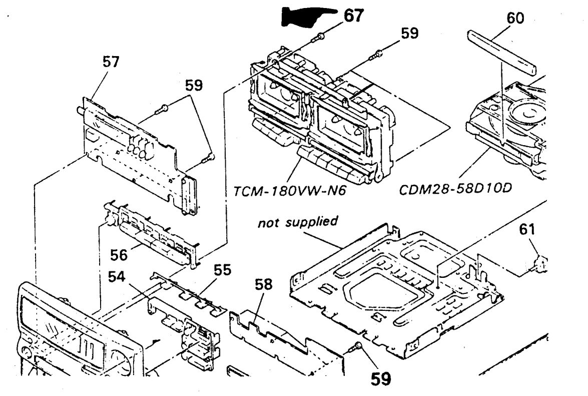
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  G : German model
  IT : Italian model

ner Type)
Remark
CASSETTE
COMPLETE
), +BVTT
), +BVTT
), +BVTT
MPLETE (AEP)
MPLETE (H490:G, IT/H490M:G)



HCD-H490/H490M (CE Type)

Ref. No	Part No	Description	Remark
2	A-4361-317-A	LID (B) ASSY, CASSETTE	
* 8	A-4378-676-A	POWER BOARD, COMPLETE	
13	4-951-620-01	SCREW (B2.6X8), +BVTP	
59	4-951-620-01	SCREW (2.6X8), +BVTP	
67	4-951-620-31	SCREW (2.6), +BVTP	
* 64	A-4378-582-A	MAIN BOARD COMPLETE (AEP)	
* 64	A-4378-583-A	MAIN BOARD COMPLETE	(H490:G, IT/H490M:G)



DIAGRAMS

IC PIN FUNCTIONS

- **IC351 TMP87CH46N-4106**

Pin No.	Pin Name	I/O	Function
1	DATA	O	Command data to CXD2515Q.
2	CLK	O	Command clock to CXD2515Q.
3	PLAY	O	LED of PLAY.
4	SUBQ	I	To Q code output of CXD2515Q.
5	SQCLK	O	Clock of on read Q code.
6	PRGL	–	Not used.
7	XLT	O	For CXD2515Q latch.
8	SCOR	I	Large frame syncronization signal. 75Hz.
9	PAUSE	O	LED of PAUSE.
10	ICSW	O	CD power supply control pin. OFF: L, ON: H.
11	AMUTE	O	Mute. To CXD2515Q.
12	SCLK	O	Servo mode for read clock.
13	LDON	O	Laser diode ON/OFF.
14	——	–	Not used.
15	——	–	Not used.
16	SENSE	I	SENSE of CXD2515Q.
17	TEST	I	Connect to GND.
18	RESET	I	Reset pin of microcomputer.
19	X1	I	Oscillator connecting input pin. 8MHz.
20	X2	O	Oscillator connecting output pin. 8MHz.
21	GND	–	GND
22	VAREF	I	Reference voltage of A/D change.
23	KEYIN0	I	A/D key input
24	KEYIN1	I	A/D key input
25	KEYIN2	I	A/D key input
26	DPCLK	O	Display clock
27	DPDAT0	O	Display data
28	DPDAT1	O	Display data
29	DPDAT2	O	Display data
30	DPDAT3	O	Display data
31	EMPH	O	Emphasis control
32	KEYREQ	I	Key request
33	AUBIN	I	AU BUS input pin
34	AUBOUT	O	AU BUS output pin
35	LODOUT	O	Tray out
36	LODIN	O	Tray in
37	OUTSW	I	Tray out switch
38	INSW	I	Tray in switch
39	A-FUNC	I	Auto function ON/OFF select
40	ADJ	I	CD test mode pin (ADJ). Normally, 5V pull up.
41	AFADJ	I	CD test mode pin (AFADJ). Normally, 5V pull up.
42	+5V	–	+5V power supply pin

- **IC501 µPD78042AGF-012-3B9**

Pin No.	Pin Name	I/O	Function
1	7G	O	FL tube digit output
2	6G	O	FL tube digit output
3	5G	O	FL tube digit output
4	4G	O	FL tube digit output
5	3G	O	FL tube digit output
6	2G	O	FL tube digit output
7	1G	O	FL tube digit output
8	VDD	–	Microcomputer power (5V)
9	CL	O	Serial clock output to LC7218 (PLL IC).
10	SO/IF COUNT NG	O	Serial data output to LC7218 (PLL IC).
11	SI	I	Serial data input from LC7218 (PLL IC).
12	CE/TIMER CLOCK	I	Chip enable input from LC7218 (PLL IC).
13	TUNED IN	I	Modulation signal from tuner block. (L ••• Field)
14	STEREO IN	I	Stereo signal from tuner block. (L ••• FM STEREO received)
15	MUTING	O	Audio mute (L: Mute)
16	AUX. OUT	–	Not used.
17	RESET	–	Microcomputer reset pin
18	FUNCTION A	O	Function control
19	FUNCTION B	O	Function control
20	AVSS	–	A/D GND for key input.
21	DISPLAY. DATA. 3	I	CD display data bit 3
22	DISPLAY. DATA. 2	I	CD display data bit 2
23	DISPLAY. DATA. 1	I	CD display data bit 1
24	DISPLAY. DATA. 0	I	CD display data bit 0
25	AUB. OUT	O	AU BUS output
26	POWER ON/OFF	O	Power on/off
27	KEY IN1	I	Key input (A/D change line 1)
28	KEY IN2	I	Key input (A/D change line 2)
29	AVDD	–	A/D power for key input (5V)
30	AVREF	–	A/D reference voltage (5V)
31	CD. BUSY	I	At H, CD is Active. (At H, tuner is fundamentally not operated
32	——	–	Not used.
33	GND	–	Microcomputer GND
34	X1	–	Crystal connection pin for Main • clock oscillator.
35	X2	–	Crystal connection pin for Main • clock oscillator.
36	POWER. MUTE	–	Not used.
37	TAPE. LED	O	Tape function LED
38	CD. LED	O	CD function LED
39	TUNER. LED	O	Tuner function LED
40	PHONO/VIDEO. LED	O	PHONO function LED

S

Function
5Q.
15Q.
515Q.
signal. 75Hz.
n. OFF: L, ON: H.
.
pin. 8MHz.
pin. 8MHz.
ange.
ct
rmally, 5V pull up.
Normally, 5V pull up.

- **IC501 µPD78042AGF-012-3B9**

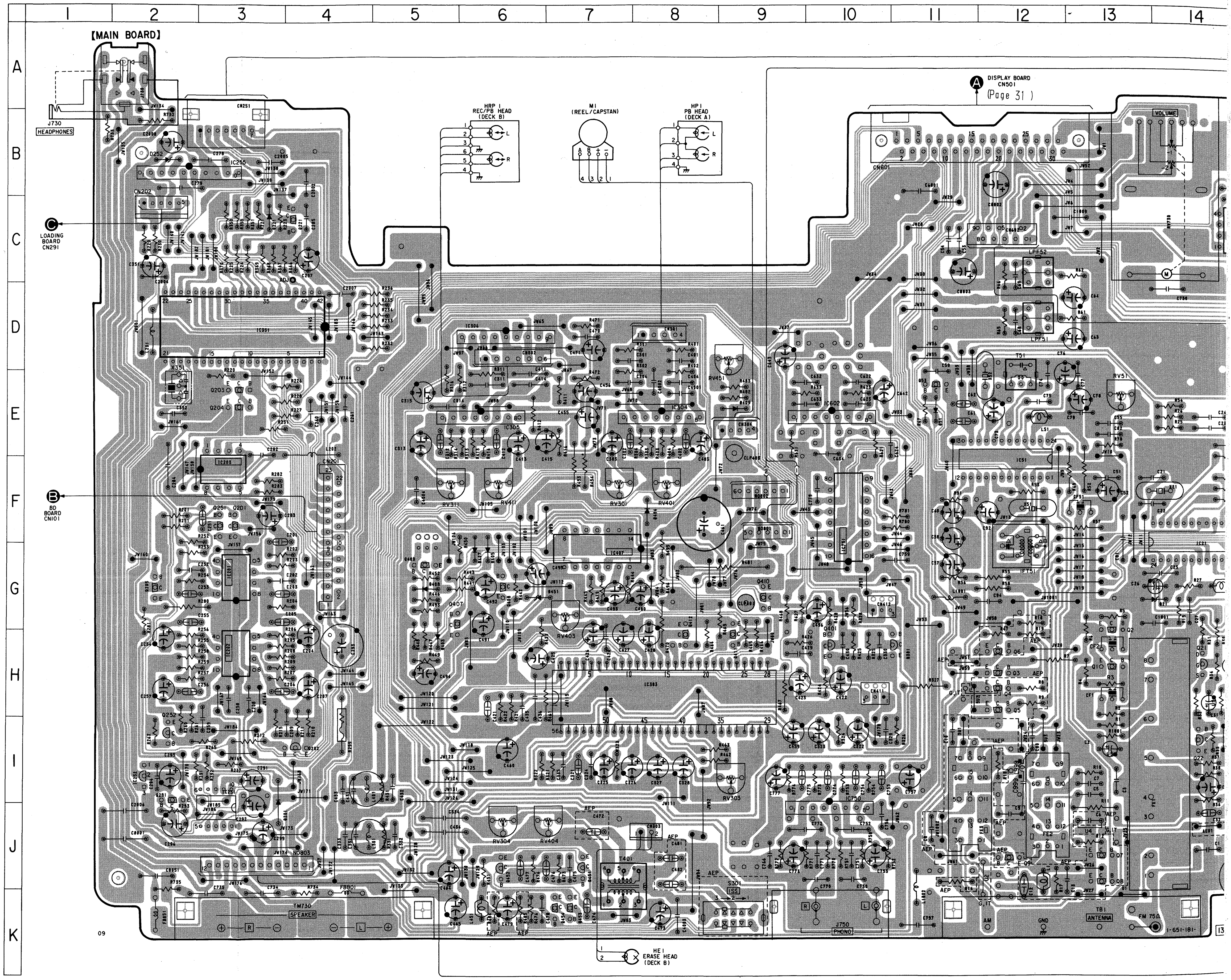
Pin No.	Pin Name	I/O	Function
1	7G	O	FL tube digit output
2	6G	O	FL tube digit output
3	5G	O	FL tube digit output
4	4G	O	FL tube digit output
5	3G	O	FL tube digit output
6	2G	O	FL tube digit output
7	1G	O	FL tube digit output
8	VDD	–	Microcomputer power (5V)
9	CL	O	Serial clock output to LC7218 (PLL IC).
10	SO/IF COUNT NG	O	Serial data output to LC7218 (PLL IC).
11	SI	I	Serial data input from LC7218 (PLL IC).
12	CE/TIMER CLOCK	I	Chip enable input from LC7218 (PLL IC).
13	TUNED IN	I	Modulation signal from tuner block. (L ••• Field)
14	STEREO IN	I	Stereo signal from tuner block. (L ••• FM STEREO received)
15	MUTING	O	Audio mute (L: Mute)
16	AUX. OUT	–	Not used.
17	RESET	–	Microcomputer reset pin
18	FUNCTION A	O	Function control
19	FUNCTION B	O	Function control
20	AVSS	–	A/D GND for key input.
21	DISPLAY. DATA. 3	I	CD display data bit 3
22	DISPLAY. DATA. 2	I	CD display data bit 2
23	DISPLAY. DATA. 1	I	CD display data bit 1
24	DISPLAY. DATA. 0	I	CD display data bit 0
25	AUB. OUT	O	AU BUS output
26	POWER ON/OFF	O	Power on/off
27	KEY IN1	I	Key input (A/D change line 1)
28	KEY IN2	I	Key input (A/D change line 2)
29	AVDD	–	A/D power for key input (5V)
30	AVREF	–	A/D reference voltage (5V)
31	CD. BUSY	I	At H, CD is Active. (At H, tuner is fundamentally not operated.)
32	——	–	Not used.
33	GND	–	Microcomputer GND
34	X1	–	Crystal connection pin for Main • clock oscillator.
35	X2	–	Crystal connection pin for Main • clock oscillator.
36	POWER. MUTE	–	Not used.
37	TAPE. LED	O	Tape function LED
38	CD. LED	O	CD function LED
39	TUNER. LED	O	Tuner function LED
40	PHONO/VIDEO. LED	O	PHONO function LED

Pin No.	Pin Name	I/O	Function
41	DBFB	–	DBFB ON/OFF
42	K-PON	–	Not used.
43	K-PON•LED	–	Not used.
44	HOLD	I	Power cut detection pin (Normally: H, AC no connect: L)
45	CD. CLOCK	I	CD display data clock
46	SIRCS IN	I	SIRCS input
47	AUB. IN	I	AU BUS input
48	——	–	Connect to GND.
49	FUNCTION. C	–	Not used.
50	VOL. DOWN	O	Volume control (VOL DOWN)
51	VOL. UP	O	Volume control (VOL UP)
52	VDD	–	Microcomputer power (5V)
53	——	–	Not used.
54	DIODE. IN2	I	Distination • model discrimination input
55	DIODE. IN1	I	Distination • model discrimination input
56	S20	–	Not used.
57	S19	O	Distination • model discrimination output
58	S18	O	Not used.
59	S17	–	Not used.
60	S16	O	Distination • model discrimination output
61	S15	O	Not used.
62	S14	–	Not used.
63	——	–	Not used.
64	S0	O	FL tube segment output
65	S1	O	FL tube segment output
66	S2	O	FL tube segment output
67	S3	O	FL tube segment output
68	S4	O	FL tube segment output
69	S5	O	FL tube segment output
70	S6	O	FL tube segment output
71	V. LOAD	–	Minus voltage for FL tube.
72	S7	O	FL tube segment output
73	S8	O	FL tube segment output
74	S9	O	FL tube segment output
75	S10	O	FL tube segment output
76	S11	O	FL tube segment output
77	S12	O	FL tube segment output
78	——	O	Not used.
79	9G	O	FL tube digit output
80	8G	O	FL tube digit output

PRINTED WIRING BOARD — MAIN SECTION —

- **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D21	G-14	Q2	H-13
D51	F-11	Q3	H-12
D201	J-4	Q4	H-12
D221	C-3	Q5	H-12
D252	B-2	Q6	H-12
D403	H-6	Q7	J-13
D404	F-8	Q8	K-13
D405	G-6	Q9	J-12
D407	G-6	Q21	H-14
D408	G-5	Q22	I-14
D409	E-9	Q23	H-15
D451	G-7	Q24	I-15
D801	I-25	Q53	E-11
D802	I-25	Q201	F-3
D901	H-22	Q202	I-4
D902	H-20	Q203	E-3
D903	I-26	Q204	E-3
D904	J-21	Q205	G-2
D905	J-22	Q221	C-4
D906	H-27	Q251	F-3
		Q252	I-2
IC21	G-14	Q291	J-3
IC51	F-12	Q301	H-11
IC201	G-3	Q401	H-10
IC202	H-3	Q407	H-6
IC203	F-3	Q408	G-6
IC251	J-3	Q409	G-5
IC252	I-2	Q410	G-9
IC255	B-3	Q411	H-9
IC303	H-8	Q412	H-8
IC304	E-8	Q451	K-7
IC305	E-6	Q452	K-6
IC306	D-6	Q453	K-7
IC351	D-3	Q454	K-7
IC407	G-8	Q801	I-25
IC602	E-10	Q802	I-25
IC730	C-15	Q803	I-25
IC750	J-10	Q804	H-25
IC751	G-10	Q901	G-21
IC801	G-24	Q902	G-25
IC851	G-23	Q903	I-22
IC901	H-21	Q904	G-22
		Q905	I-22
Q1	H-13	Q906	J-20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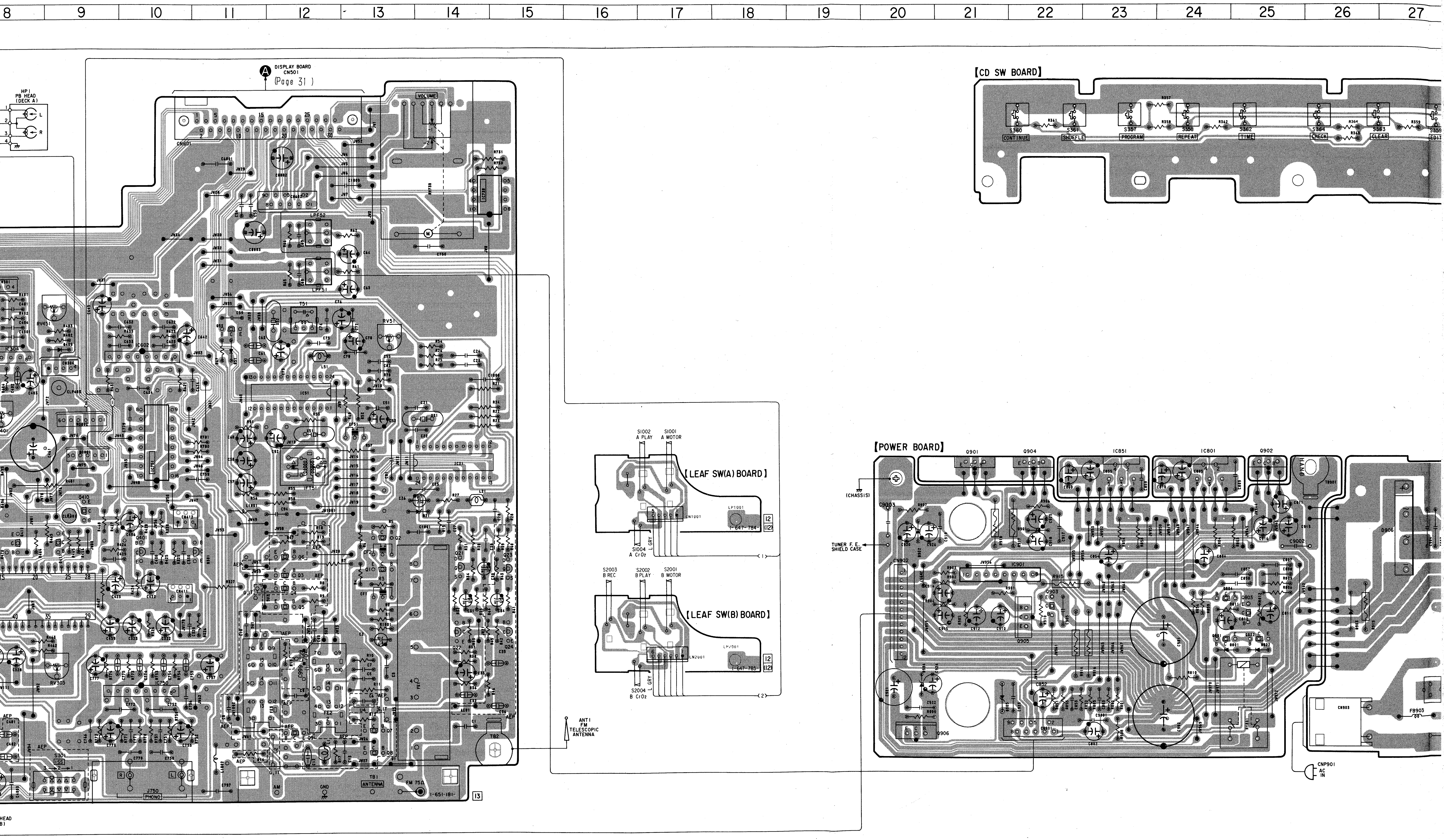
A
B
C
D
E
F
G
H
I
J
K
[MAIN BOARD]
J730
HEADPHONES
LOADING BOARD CN291
BD BOARD CN101
HRP1 REC/PB HEAD (DECK B)
M1 (REEL/CAPSTAN)
HP1 PB HEAD (DECK A)
DISPLAY BOARD CN501
(Page 31)
VOLUME
CN601
IC301
IC303
IC304
IC305
IC407
IC602
IC51
IC21
RV301
RV401
RV303
RV304
RV404
RV311
RV411
RV403
RV451
RV51
T401
T51
LPF51
LPF52
S301
TM730
SPEAKER
J750
PHONO
AM
GND
TB1
ANTENNA
FM 75Ω
HE1
ERASE HEAD
(DECK B)
AEP
1-651-181-
09

Note:

- ○—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- △ : internal component.
- ▨ : Pattern from the side which enable seeing.
- Abbreviation

G : German model.
IT : Italian model.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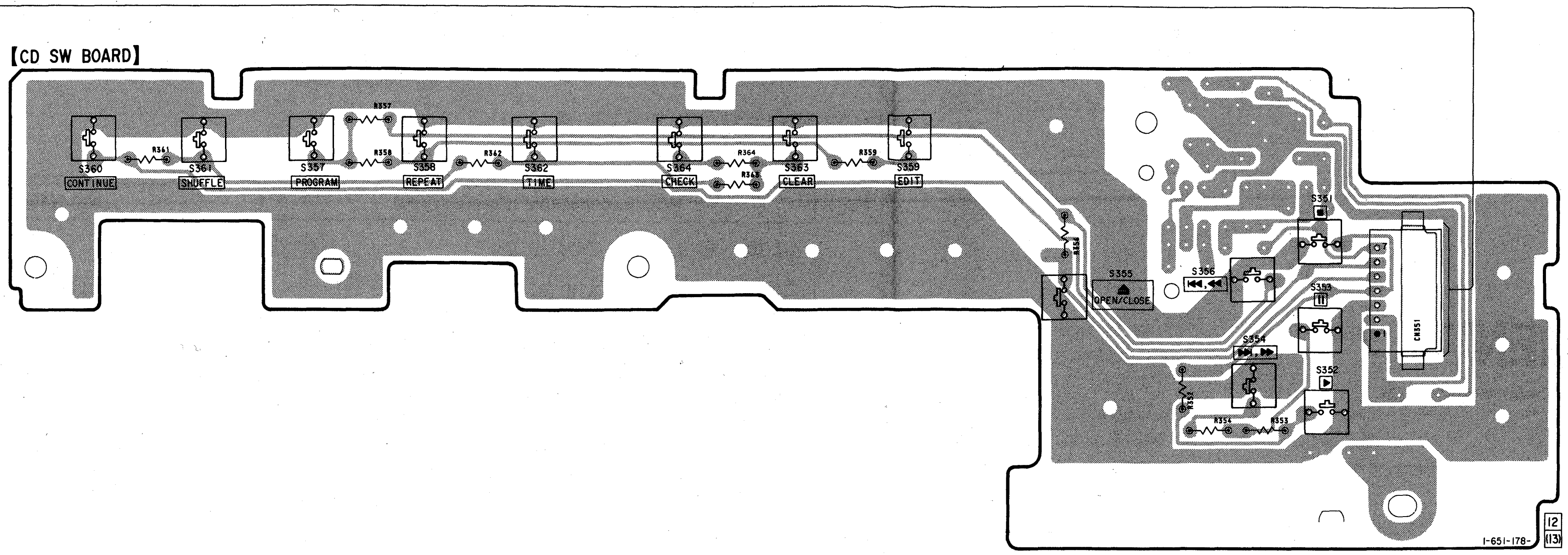
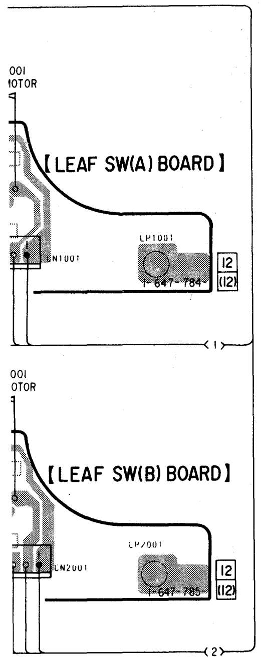
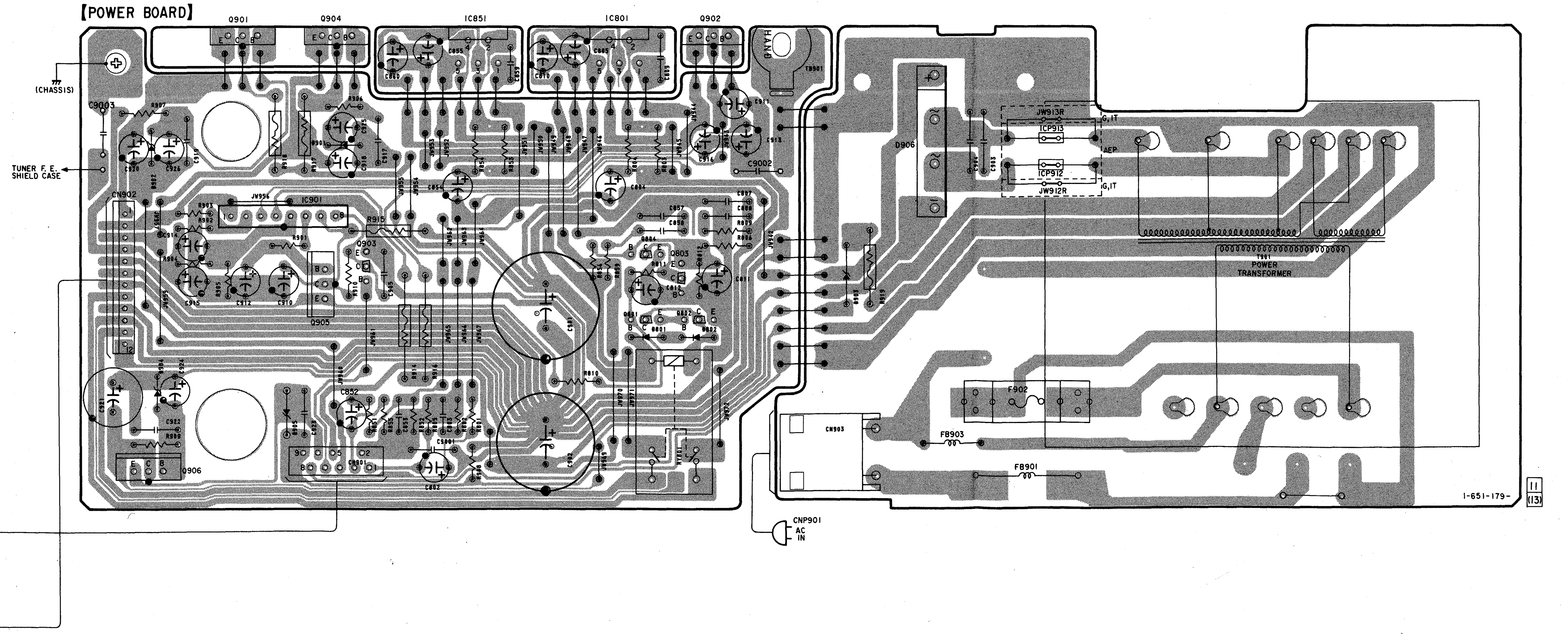
27
A DISPLAY BOARD CN501 (Page 31)
HP1 PB HEAD (DECK A)
VOLUME
CN801
RV451
IC602
RV51
T51
LPF52
LPF51
RV305
S301 ISS
J750 PHONO
AM
GND
ANTENNA
FM 75Ω
1-651-181-
13
ANT1 FM TELESCOPIC ANTENNA
[CD SW BOARD]
S360 CONTINUE
S361 SHUFFLE
S357 PROGRAM
S358 REPEAT
S362 TIME
S364 CHECK
S363 CLEAR
EDIT
[LEAF SW(A) BOARD]
S1002 A PLAY
S1001 A MOTOR
S1004 A CrO2
LP1001
1-647-784-
12
(12)
GRY
[LEAF SW(B) BOARD]
S2003 B REC
S2002 B PLAY
S2001 B MOTOR
S2004 B CrO2
LP2001
1-647-785-
12
(12)
GRY
[POWER BOARD]
Q901
Q904
IC851
IC801
Q902
(CHASSIS)
TUNER F.E. SHIELD CASE
CN902
IC901
Q905
Q906
CN903
FB903
CNP901 AC IN

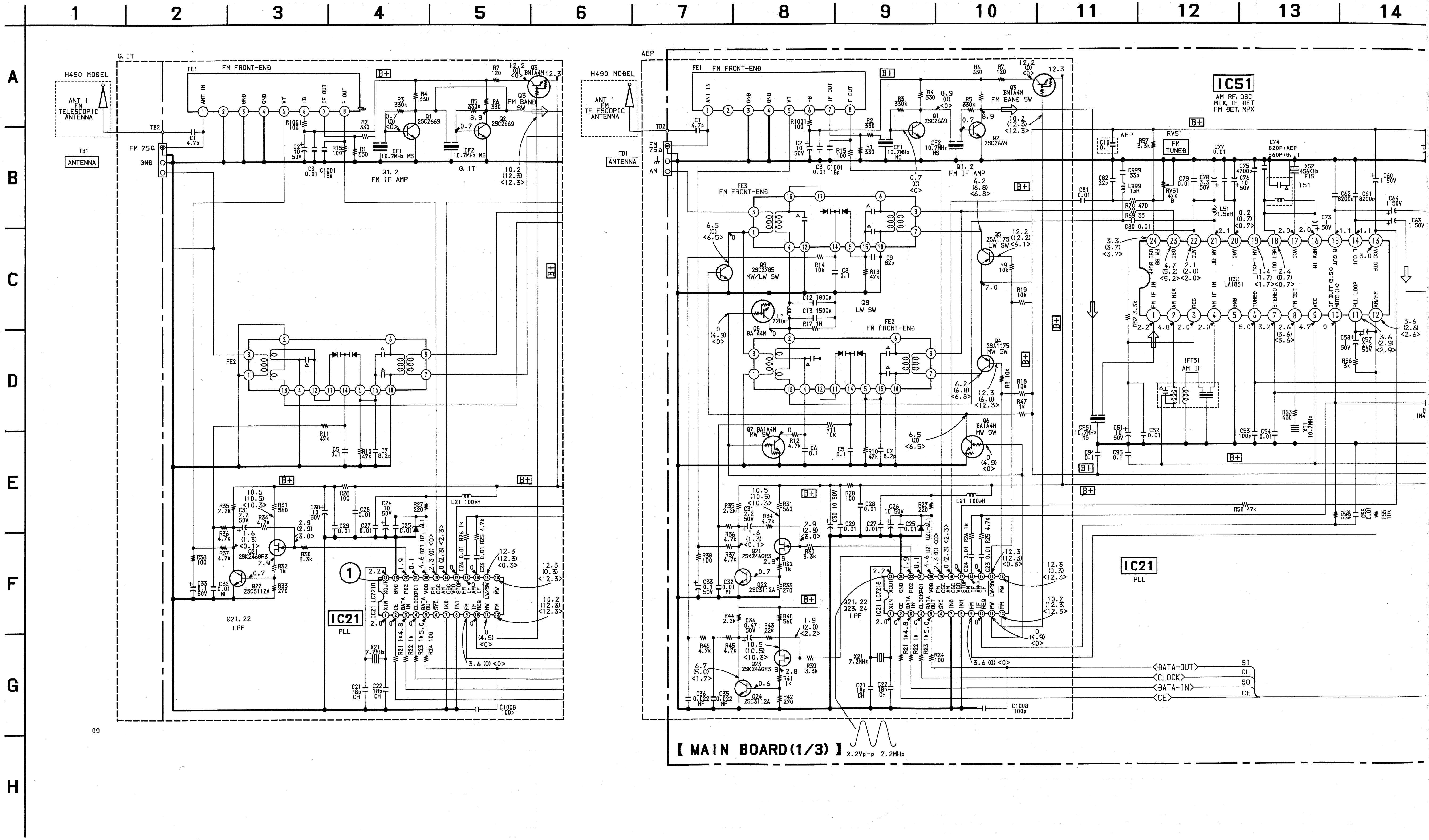
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32


【CD SW BOARD】
S360
CONTINUE
R361
S361
SHUFFLE
S357
PROGRAM
R357
R358
S358
REPEAT
R362
S362
TIME
S364
CHECK
R364
R363
S363
CLEAR
R359
S359
EDIT
S351
S355
OPEN/CLOSE
S356
S353
S354
S352
CN351
R354
R353
1-651-178-
12
(13)


001
MOTOR
【LEAF SW(A) BOARD】
LP1001
CN1001
1-647-784-
12
(12)
001
MOTOR
【LEAF SW(B) BOARD】
LP2001
CN2001
1-647-785-
12
(12)


【POWER BOARD】
Q901
Q904
IC851
IC801
Q902
(CHASSIS)
C9003
TUNER F.E. SHIELD CASE
CN902
JW956
IC901
R915
Q903
Q905
C852
C9001
C802
Q906
Q801
Q802
C9002
Q908
JW913R
CP913
CP912
JW912R
G,IT
AEP
T901
POWER TRANSFORMER
F902
FB903
FB901
CN903
CNP901
AC IN
1-651-179-
11
(13)

SCHEMATIC DIAGRAM — TUNER SECTION —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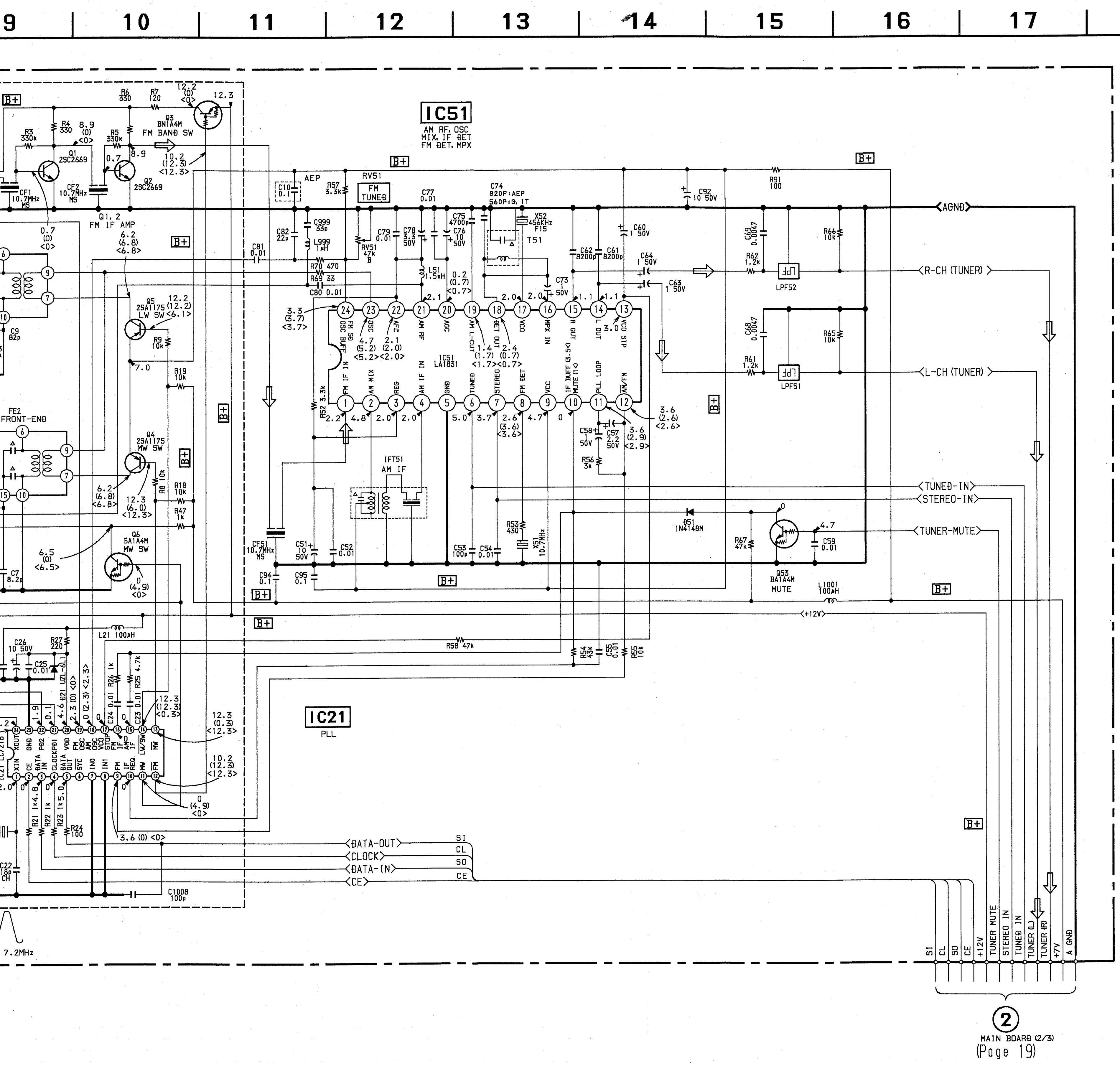
A
B
C
D
E
F
G
H
G, IT
AEP
H490 MODEL
ANT 1 FM TELESCOPIC ANTENNA
TB1 ANTENNA
TB2
FM 75Ω
GND
AM
FE1 FM FRONT-END
FE2
FE2 FM FRONT-END
FE3 FM FRONT-END
Q1, 2 FM IF AMP
Q3 BN1A4M FM BAND SW
Q1 2SC2669
Q2 2SC2669
CF1 10.7MHz MS
CF2 10.7MHz MS
Q4 2SA1175 MW SW
Q5 2SA1175 LW SW
Q6 BA1A4M MW SW
Q7 BA1A4M MW SW
Q8 BA1A4M
Q8 LW SW
Q9 2SC2785 MW/LW SW
Q21 2SK2460R3
Q22 2SC3112A
Q23 2SK2460R3
Q24 2SC3112A
Q21, 22 LPF
Q21, 22 Q23, 24 LPF
IC21 LC7218
IC21 PLL
X21 7.2MHz
L21 100μH
C1008 100p
IC51
AM RF, OSC MIX, IF DET FM DET, MPX
IC51 LA1831
RV51 FM TUNED
IFT51 AM IF
X52 456kHz
X51 10.7MHz
CF51 10.7MHz MS
T51
L51 1.5mH
B+
DATA-OUT
CLOCK
DATA-IN
CE
SI
CL
SO
CE
【 MAIN BOARD(1/3) 】
2.2Vp-p 7.2MHz
09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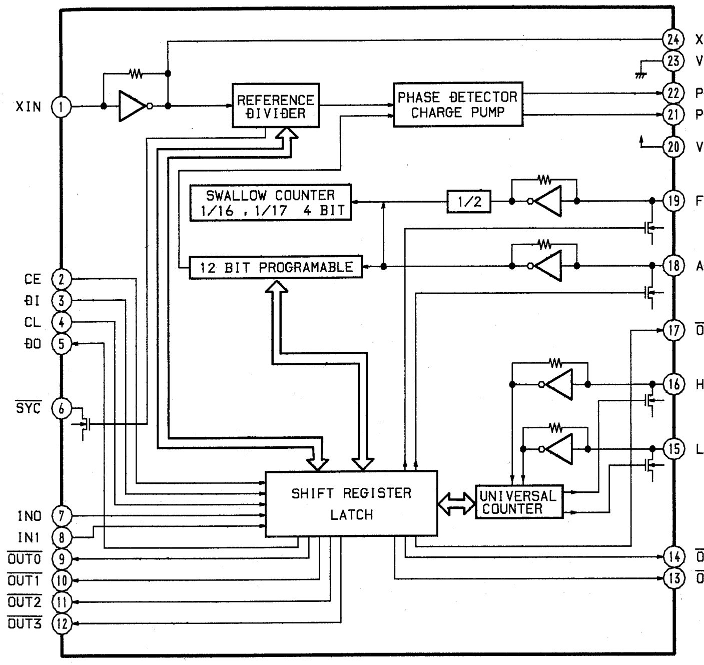
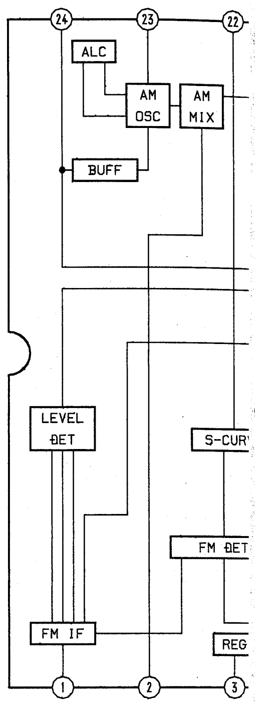
IC51
AM RF, OSC
MIX, IF DET
FM DET, MPX
IC51 LA1831
IC21
PLL
Q1 2SC2669
Q2 2SC2669
Q1, 2 FM IF AMP
Q3 BN1A4M FM BAND SW
Q4 2SA1175 MW SW
Q5 2SA1175 LW SW
Q6 BA1A4M MW SW
Q53 BA1A4M MUTE
D51 1N4148M
CF1 10.7MHz MS
CF2 10.7MHz MS
CF51 10.7MHz MS
X51 10.7MHz
X52 456kHz F15
T51
IFT51 AM IF
L999 1μH
L51 1.5mH
L21 100μH
L1001 100μH
LPF52
LPF51
RV51 47k B
FM TUNED
AEP
FE2 FRONT-END
C74 820P:AEP 560P:G, IT
FM IF IN
AM MIX
REG
AM IF IN
GND
TUNED
STEREO
FM DET
VCC
IF BUFF (3.5) MUTE (1<)
PLL LOOP
AM/FM
FM SD BUFF
OSC
AFC
AM RF
AGC
AM L-OUT
DET OUT
VCO
MPX IN
R OUT
L OUT
VCO STP
AGND
R-CH (TUNER)
L-CH (TUNER)
TUNED-IN
STEREO-IN
TUNER-MUTE
+12V
DATA-OUT
CLOCK
DATA-IN
CE
SI
CL
SO
CE
SI
CL
SO
CE
+12V
TUNER MUTE
STEREO IN
TUNED IN
TUNER (L)
TUNER (R)
+7V
A GND
7.2MHz
B+
② MAIN BOARD (2/3)
(Page 19)

· IC BLOCK DIAGRAMS

IC21 LC7218

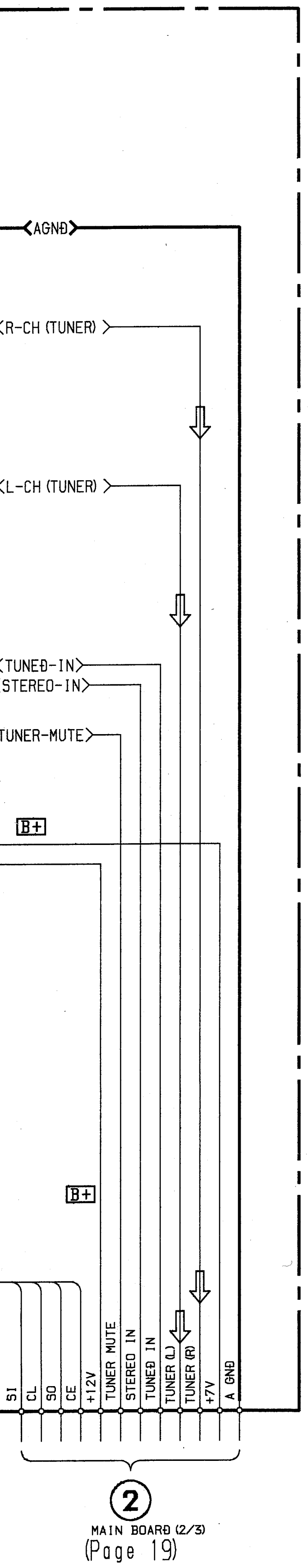

XIN ①
CE ②
DI ③
CL ④
DO ⑤
SYC ⑥
IN0 ⑦
IN1 ⑧
OUT0 ⑨
OUT1 ⑩
OUT2 ⑪
OUT3 ⑫
REFERENCE DIVIDER
PHASE DETECTOR CHARGE PUMP
SWALLOW COUNTER 1/16 , 1/17 4 BIT
1/2
12 BIT PROGRAMABLE
SHIFT REGISTER LATCH
UNIVERSAL COUNTER
㉔ XOUT
㉓ VSS
㉒ PD2
㉑ PD1
⑳ VDD
⑲ FM IN
⑱ AM IN
⑰ OUT6
⑯ HCTR
⑮ LCTR
⑭ OUT5
⑬ OUT4

IC51 LA1831


㉔
㉓
㉒
ALC
AM OSC
AM MIX
BUFF
LEVEL DET
S-CURV
FM DET
FM IF
REG
①
②
③

NOTE

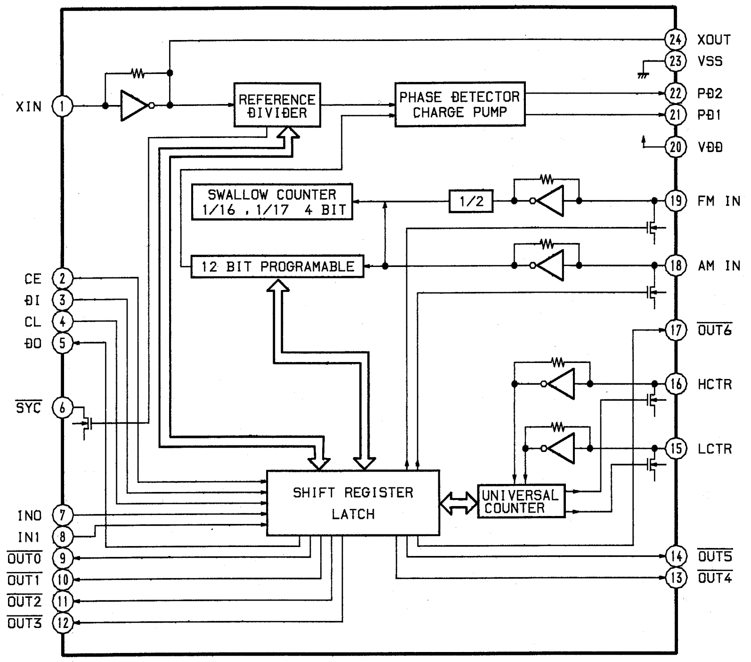
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ :internal component.
- ▭ :panel designation.
- B+ :B+ Line.
- ▭ :adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark: FM
  ( ): MW
  < >: LW
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ :FM
- Abbreviation
  G :German model.
  IT :Italian model.



AGND
R-CH (TUNER)
L-CH (TUNER)
TUNED-IN
STEREO-IN
TUNER-MUTE
B+
B+
SI
CL
SO
CE
+12V
TUNER MUTE
STEREO IN
TUNED IN
TUNER (L)
TUNER (R)
+7V
A GND
②
MAIN BOARD (2/3)
(Page 19)

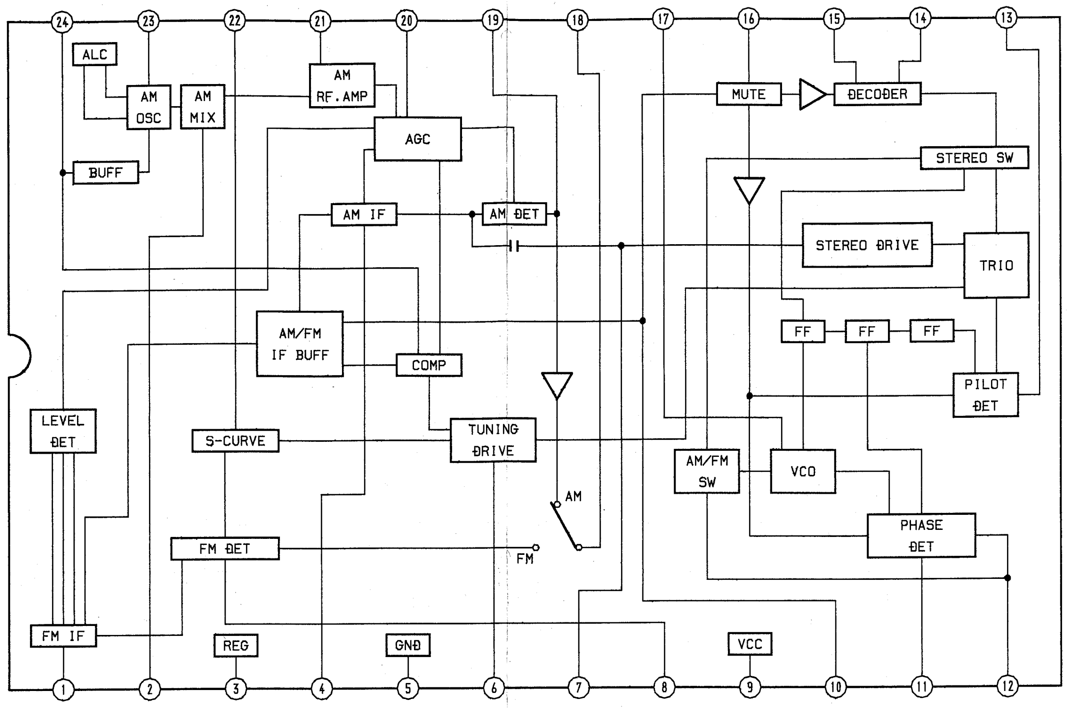
·IC BLOCK DIAGRAMS

IC21 LC7218



XIN ①
CE ②
DI ③
CL ④
DO ⑤
SYC ⑥
IN0 ⑦
IN1 ⑧
OUT0 ⑨
OUT1 ⑩
OUT2 ⑪
OUT3 ⑫
⑬ OUT4
⑭ OUT5
⑮ LCTR
⑯ HCTR
⑰ OUT6
⑱ AM IN
⑲ FM IN
⑳ VDD
㉑ PD1
㉒ PD2
㉓ VSS
㉔ XOUT
REFERENCE DIVIDER
PHASE DETECTOR CHARGE PUMP
SWALLOW COUNTER 1/16 , 1/17 4 BIT
1/2
12 BIT PROGRAMABLE
SHIFT REGISTER LATCH
UNIVERSAL COUNTER

IC51 LA1831

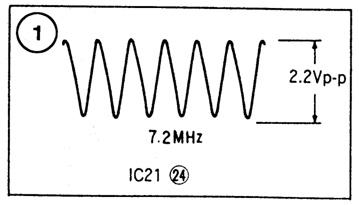


ALC
AM OSC
AM MIX
AM RF.AMP
AGC
BUFF
AM IF
AM DET
MUTE
DECODER
STEREO SW
STEREO DRIVE
TRIO
AM/FM IF BUFF
COMP
FF
FF
FF
PILOT DET
LEVEL DET
S-CURVE
TUNING DRIVE
AM
FM
AM/FM SW
VCO
PHASE DET
FM DET
FM IF
REG
GND
VCC

NOTE

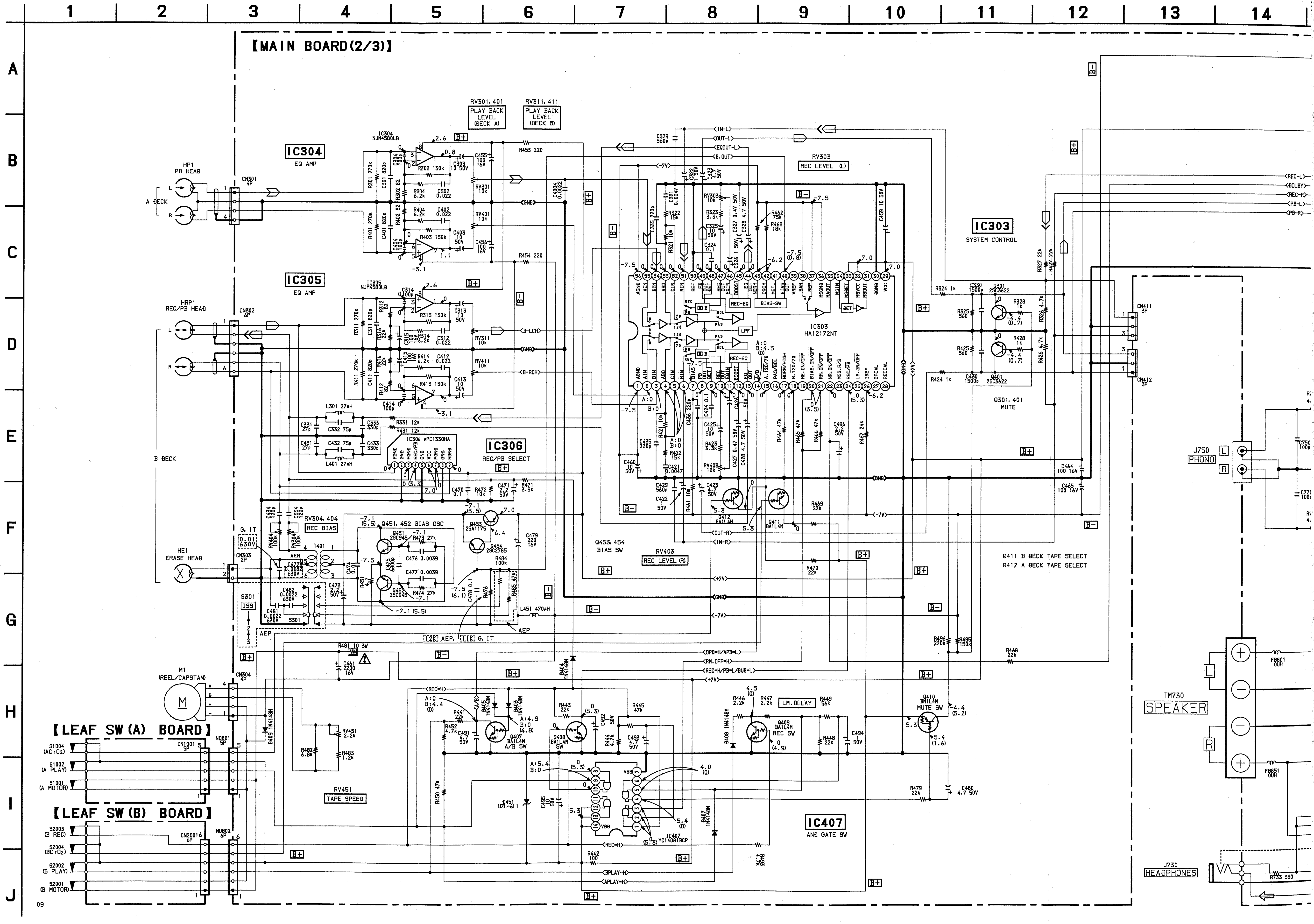
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ :internal component.
- ▭ :panel designation.
- B+ :B+ Line.
- ▭ :adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (deturned) conditions.
  no mark: FM
  ( ) : MW
  < >: LW
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ :FM
- Abbreviation
  G :German model.
  IT :Italian model.

• Waveforms



SCHEMATIC DIAGRAM — DECK SECTION —

- See page 6 for Printed Wiring Board.


【MAIN BOARD(2/3)】
IC304
EQ AMP
IC305
EQ AMP
IC306
REC/PB SELECT
IC303
SYSTEM CONTROL
IC303
HA12172NT
IC407
AND GATE SW
RV301, 401
PLAY BACK LEVEL (DECK A)
RV311, 411
PLAY BACK LEVEL (DECK B)
RV303
REC LEVEL (L)
RV403
REC LEVEL (R)
RV304, 404
REC BIAS
RV451
TAPE SPEED
HP1
PB HEAD
A DECK
HRP1
REC/PB HEAD
B DECK
HE1
ERASE HEAD
Q451, 452 BIAS OSC
Q453, 454
BIAS SW
Q301, 401
MUTE
Q411 B DECK TAPE SELECT
Q412 A DECK TAPE SELECT
Q407
A/B SW
Q408
BAIL4M
SW
Q409
BAIL4M
REC SW
Q410
BNIL4M
MUTE SW
LM.DELAY
M1
(REEL/CAPSTAN)
【LEAF SW(A) BOARD】
S1004 (ACrO2)
S1002 (A PLAY)
S1001 (A MOTOR)
【LEAF SW(B) BOARD】
S2003 (B REC)
S2004 (BCrO2)
S2002 (B PLAY)
S2001 (B MOTOR)
CN301 4P
CN302 6P
CN303 2P
CN304 4P
CN411 3P
CN412 3P
J750
PHONO
TM730
SPEAKER
J730
HEADPHONES
S301
AEP
G, IT
1
2
3
4
5
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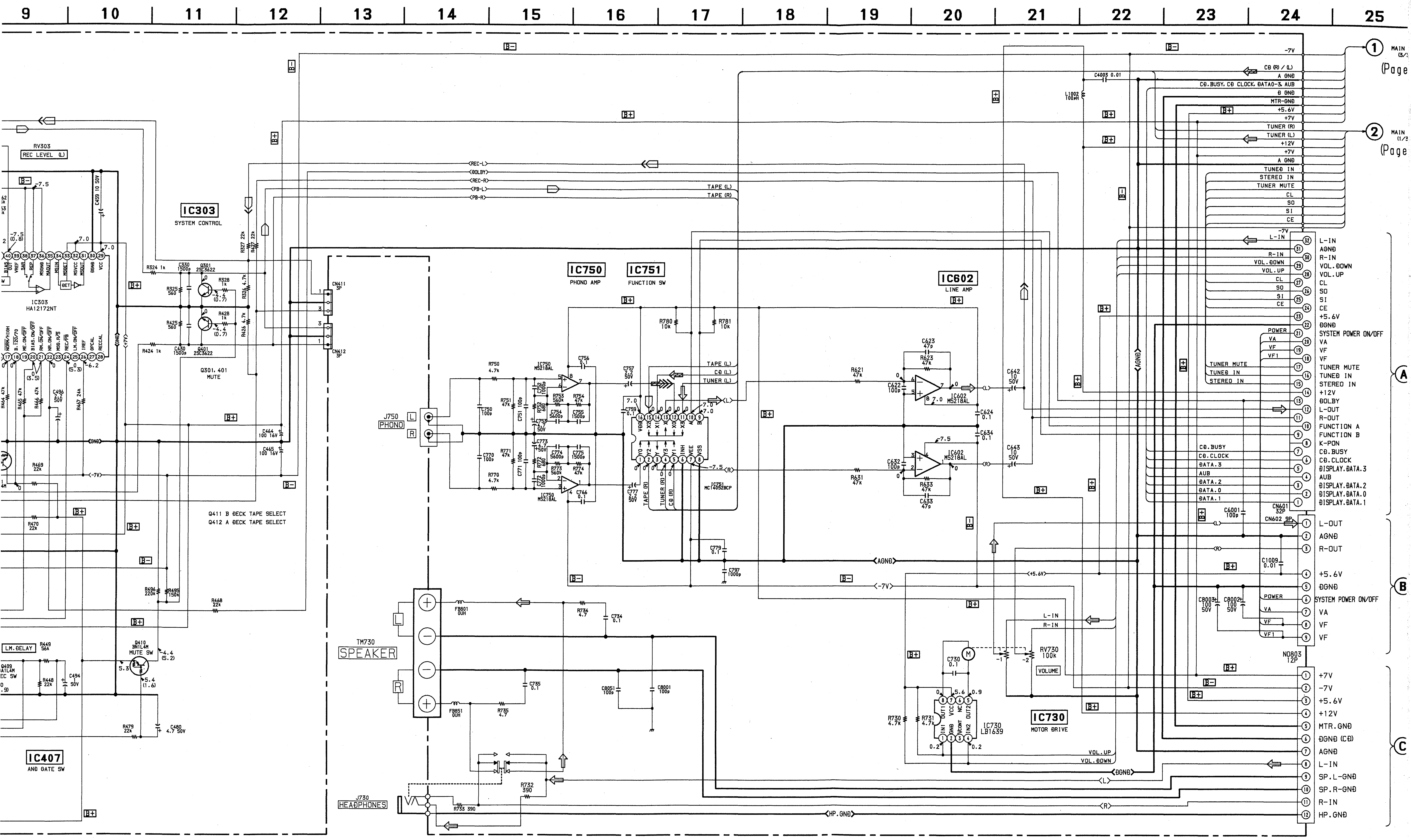
A
B
C
D
E
F
G
H
I
J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18
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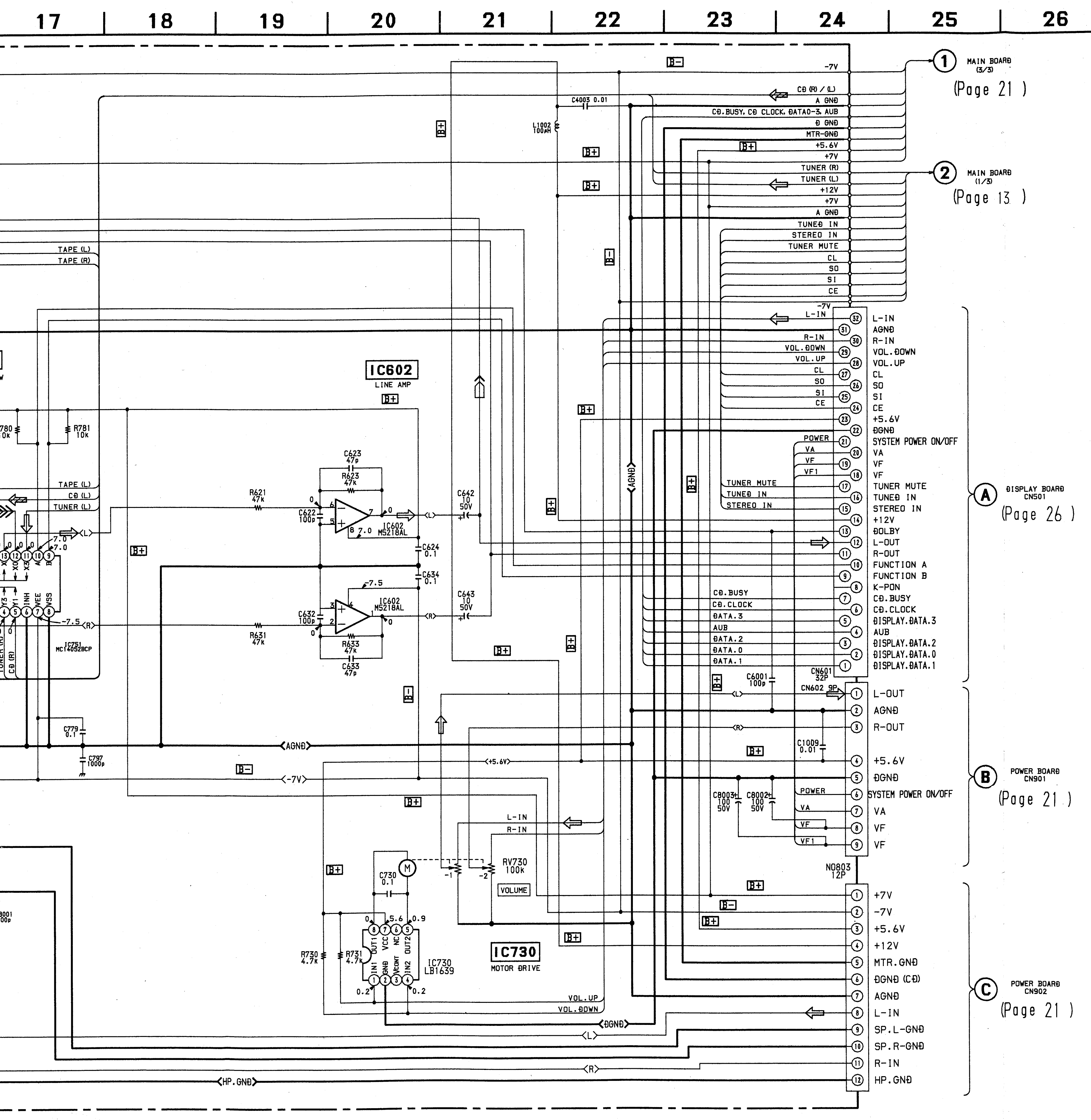
22
23
24
25
RV303
REC LEVEL (L)
IC303
SYSTEM CONTROL
IC303
HA12172NT
Q301, 401
MUTE
Q301 2SC3622
Q401 2SC3622
CN411 3P
CN412 3P
<REC-L>
<DOLBY>
<REC-R>
<PB-L>
<PB-R>
TAPE (L)
TAPE (R)
IC750
PHONO AMP
IC751
FUNCTION SW
IC751 MC14052BCP
IC750 M5218AL
IC602
LINE AMP
IC602 M5218AL
J750 PHONO
L
R
Q411 B DECK TAPE SELECT
Q412 A DECK TAPE SELECT
TM730
SPEAKER
J730
HEADPHONES
FB801 0UH
FB851 0UH
R734 4.7
R735 4.7
R732 390
R733 390
C734 0.1
C735 0.1
C8051 100p
C8001 100p
IC730
MOTOR DRIVE
IC730 LB1639
RV730 100k
VOLUME
L-IN
R-IN
VOL.UP
VOL.DOWN
<AGND>
<-7V>
<+5.6V>
<DGND>
<HP.GND>
<GND>
<(L)>
<(R)>
Q410 BN1L4M MUTE SW
Q409 ... SEC SW
LM.DELAY
IC407
AND GATE SW
TAPE (L)
CD (L)
TUNER (L)
C4003 0.01
L1002 100μH
-7V
CD (R) / (L)
A GND
CD.BUSY, CD CLOCK, DATA0-3, AUB
D GND
MTR-GND
+5.6V
+7V
TUNER (R)
TUNER (L)
+12V
+7V
A GND
TUNED IN
STEREO IN
TUNER MUTE
CL
SO
SI
CE
MAIN
(Page
①
②
CN601 32P
L-IN
AGND
R-IN
VOL.DOWN
VOL.UP
CL
SO
SI
CE
+5.6V
DGND
SYSTEM POWER ON/OFF
VA
VF
VF
TUNER MUTE
TUNED IN
STEREO IN
+12V
DOLBY
L-OUT
R-OUT
FUNCTION A
FUNCTION B
K-PON
CD.BUSY
CD.CLOCK
DISPLAY.DATA.3
AUB
DISPLAY.DATA.2
DISPLAY.DATA.0
DISPLAY.DATA.1
CD.BUSY
CD.CLOCK
DATA.3
AUB
DATA.2
DATA.0
DATA.1
POWER
VA
VF
VF1
CN602 9P
L-OUT
AGND
R-OUT
+5.6V
DGND
SYSTEM POWER ON/OFF
VA
VF
VF
C6001 100p
C1009 0.01
C8003 100 50V
C8002 100 50V
ND803 12P
+7V
-7V
+5.6V
+12V
MTR.GND
DGND (CD)
AGND
L-IN
SP.L-GND
SP.R-GND
R-IN
HP.GND
Ⓐ
Ⓑ
Ⓒ
B+
B-


17
18
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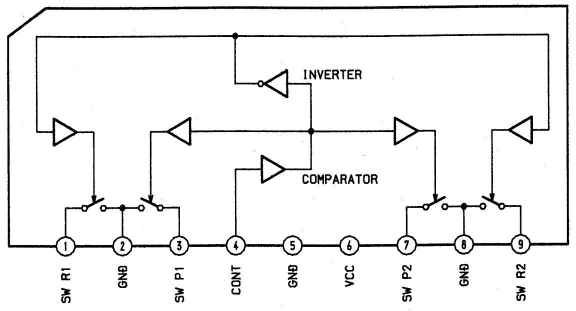
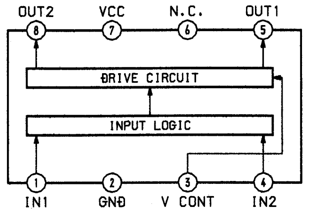
21
22
23
24
25
26
27
28
29
30
-7V
CD (R) / (L)
A GND
CD.BUSY, CD CLOCK, DATA0-3, AUB
D GND
MTR-GND
+5.6V
+7V
TUNER (R)
TUNER (L)
+12V
+7V
A GND
TUNED IN
STEREO IN
TUNER MUTE
CL
SO
SI
CE
① MAIN BOARD (3/3) (Page 21)
② MAIN BOARD (1/3) (Page 13)
C4003 0.01
L1002 100μH
TAPE (L)
TAPE (R)
TUNER (L)
CD (L)
TUNER (L)
R780 10k
R781 10k
IC751 MC14052BCP
C779 0.1
C797 1000p
IC602 LINE AMP
R621 47k
R631 47k
C622 100p
C632 100p
C623 47p
R623 47k
R633 47k
C633 47p
IC602 M5218AL
C624 0.1
C634 0.1
C642 10 50V
C643 10 50V
(AGND)
(-7V)
(+5.6V)
(AGND)
(DGND)
(HP.GND)
(L)
(R)
L-IN
R-IN
VOL.UP
VOL.DOWN
RV730 100k
VOLUME
C730 0.1
IC730 MOTOR DRIVE
IC730 LB1639
R730 4.7k
R731 4.7k
CN601 32P
L-IN
AGND
R-IN
VOL.DOWN
VOL.UP
CL
SO
SI
CE
+5.6V
DGND
SYSTEM POWER ON/OFF
VA
VF
VF
TUNER MUTE
TUNED IN
STEREO IN
+12V
DOLBY
L-OUT
R-OUT
FUNCTION A
FUNCTION B
K-PON
CD.BUSY
CD.CLOCK
DISPLAY.DATA.3
AUB
DISPLAY.DATA.2
DISPLAY.DATA.0
DISPLAY.DATA.1
POWER
VA
VF
VF1
CD.BUSY
CD.CLOCK
DATA.3
AUB
DATA.2
DATA.0
DATA.1
Ⓐ DISPLAY BOARD CN501 (Page 26)
C6001 100p
CN602 9P
L-OUT
AGND
R-OUT
C1009 0.01
+5.6V
DGND
SYSTEM POWER ON/OFF
VA
VF
VF
C8003 100 50V
C8002 100 50V
Ⓑ POWER BOARD CN901 (Page 21)
N0803 12P
+7V
-7V
+5.6V
+12V
MTR.GND
DGND (CD)
AGND
L-IN
SP.L-GND
SP.R-GND
R-IN
HP.GND
Ⓒ POWER BOARD CN902 (Page 21)
B+
B-

• IC BLOCK DIAGRAMS

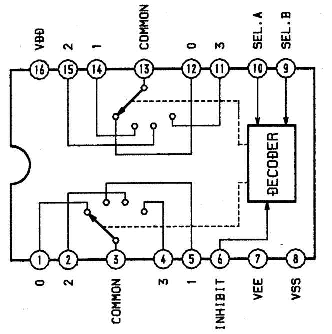
IC306 UPC1330HA


INVERTER
COMPARATOR
SW R1
GND
SW P1
CONT
GND
VCC
SW P2
GND
SW R2

IC730 LB1639


OUT2
VCC
N.C.
OUT1
DRIVE CIRCUIT
INPUT LOGIC
IN1
GND
V CONT
IN2

IC751 MC14052BCP


VDD
2
1
COMMON
0
3
SEL.A
SEL.B
DECODER
0
2
COMMON
3
1
INHIBIT
VEE
VSS

NOTE

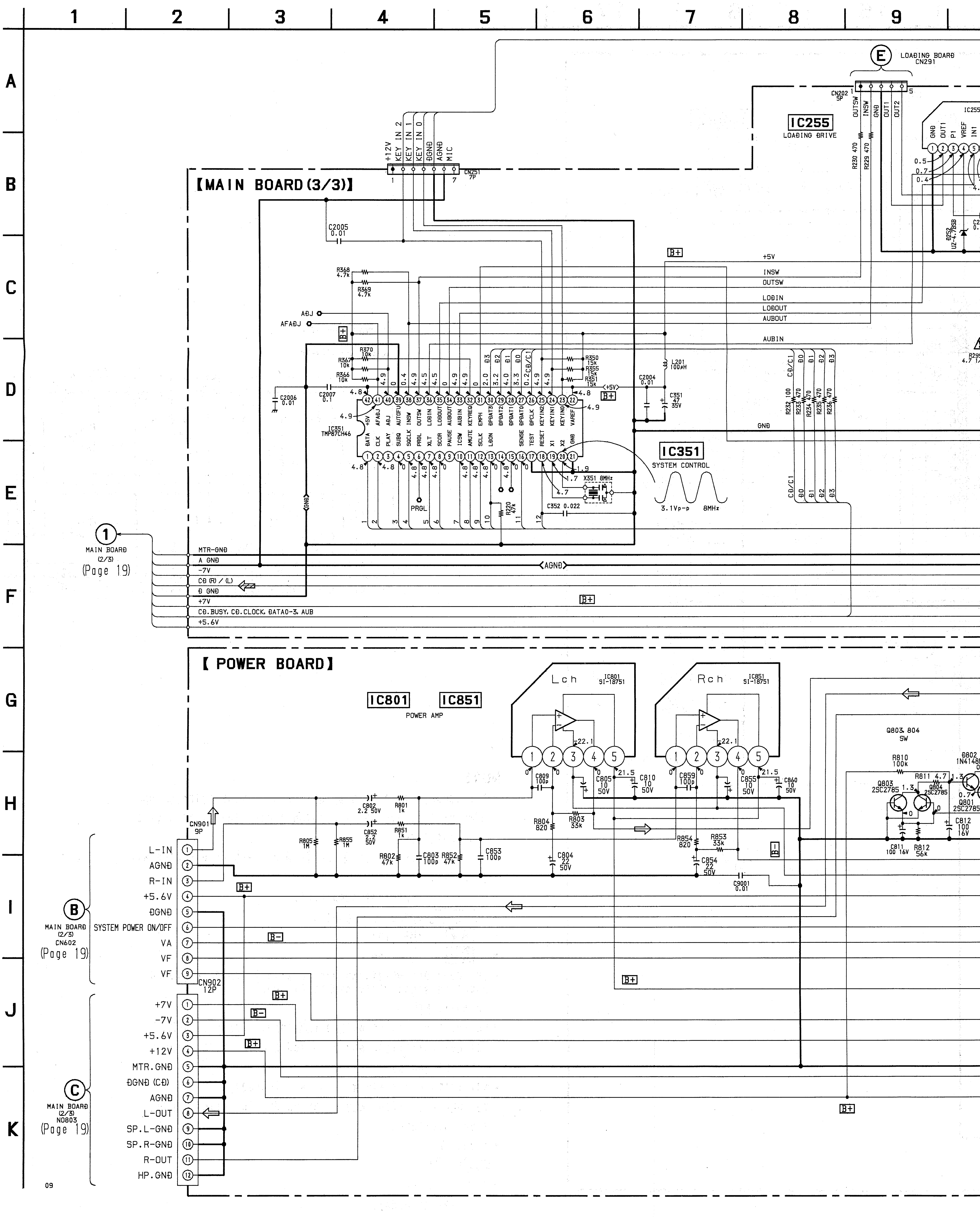
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- ▭ :nonflammable resistor.
- ▭ :panel designation.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- B+ :B+ Line.
- B- :B- Line.
- ▭ :adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:PLAY
  ( ) :REC
  A :A DECK
  B :B DECK
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ :FM
  ⋗ :PB (DECK A)
  ▷ :PB (DECK B)
  ▷» :REC (DECK B)
  ⇨ :CD
  ⇨» :PHONO
- Abbreviation
  G :German model.
  IT :Italian model.

SCHEMATIC DIAGRAM — CD CONTROL/POWER SECTION —

- See page 3 for IC Pin Functions. (IC351)
- See page 6 for Printed Wiring Board.



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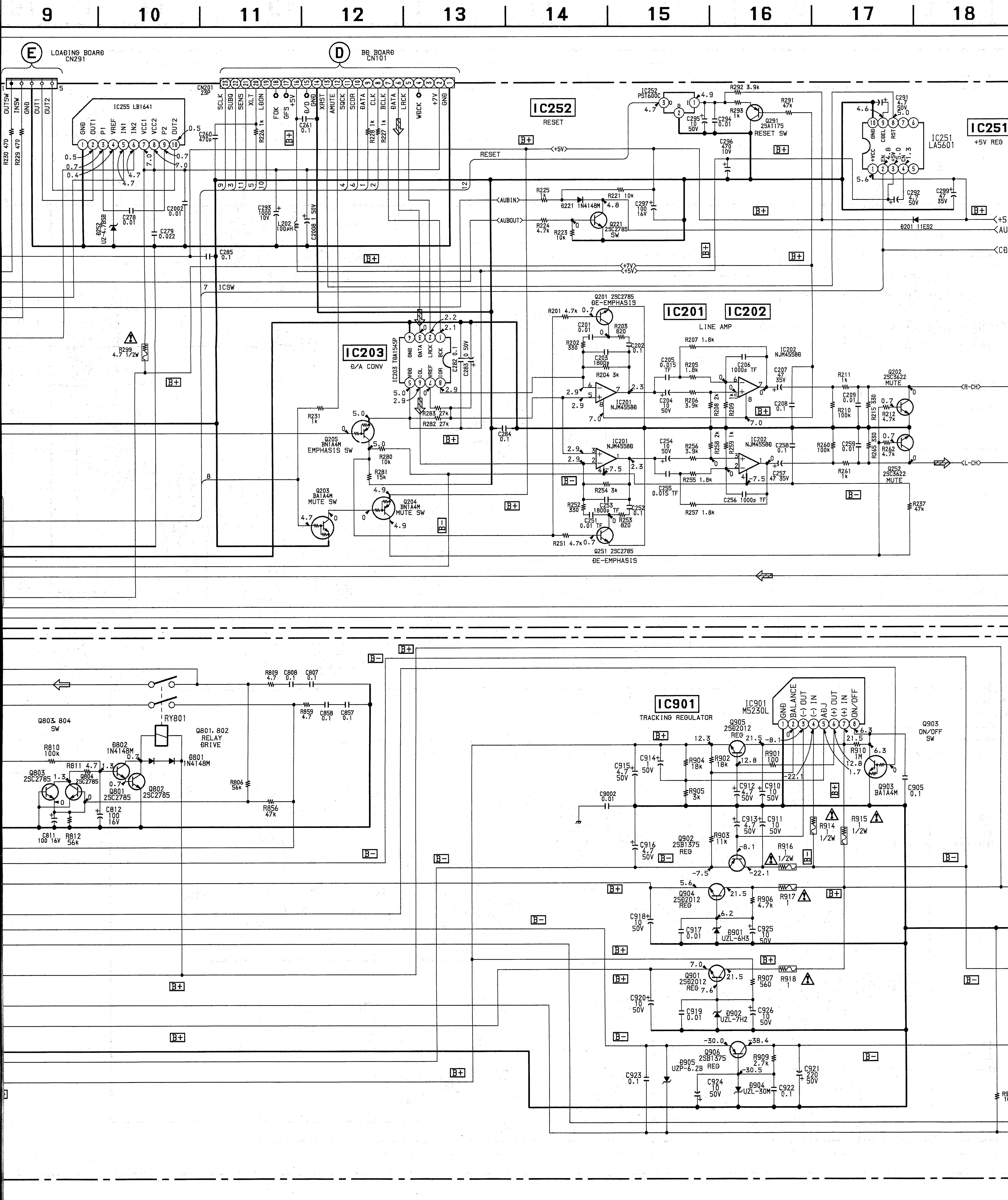
A
B
C
D
E
F
G
H
I
J
K
E LOADING BOARD CN291
IC255 LOADING DRIVE
CN202 5P
OUTSW
INSW
GND
OUT1
OUT2
R230 470
R229 470
+12V
KEY IN 2
KEY IN 1
KEY IN 0
DGND
AGND
MIC
CN251 7P
【MAIN BOARD (3/3)】
C2005 0.01
R368 4.7k
R369 4.7k
ADJ
AFADJ
R370 10k
R367 10k
R366 10k
C2006 0.01
C2007 0.1
IC351 TMP87CH46
IC351 SYSTEM CONTROL
X351 8MHz
C352 0.022
3.1Vp-p 8MHz
R350 15k
R355 15k
R351 15k
L201 100μH
C2004 0.01
C351 47 35V
+5V
INSW
OUTSW
LODIN
LODOUT
AUBOUT
AUBIN
GND
R232 100
R233 470
R234 470
R235 470
R236 470
PRGL
R220 47k
1 MAIN BOARD (2/3) (Page 19)
MTR-GND
A GND
-7V
CD (R) / (L)
D GND
+7V
CD.BUSY, CD.CLOCK, DATA0-3, AUB
+5.6V
AGND
【 POWER BOARD】
IC801
IC851
POWER AMP
Lch IC801 SI-18751
Rch IC851 SI-18751
Q803, 804 SW
R810 100k
R811 4.7
D802 1N4148
Q803 2SC2785
Q804 2SC2785
Q801 2SC2785
C811 100 16V
R812 56k
C812 100 16V
C809 100p
C805 10 50V
C810 10 50V
C859 100p
C855 10 50V
C860 10 50V
21.5
22.1
C802 2.2 50V
R801 1k
C852 2.2 50V
R851 1k
R804 820
R803 33k
R854 820
R853 33k
R805 1M
R855 1M
R802 47k
C803 100p
R852 47k
C853 100p
C804 22 50V
C854 22 50V
C9001 0.01
CN901 9P
L-IN
AGND
R-IN
+5.6V
DGND
SYSTEM POWER ON/OFF
VA
VF
VF
B MAIN BOARD (2/3) CN602 (Page 19)
CN902 12P
+7V
-7V
+5.6V
+12V
MTR.GND
DGND (CD)
AGND
L-OUT
SP.L-GND
SP.R-GND
R-OUT
HP.GND
C MAIN BOARD (2/3) NO803 (Page 19)
B+
B-
09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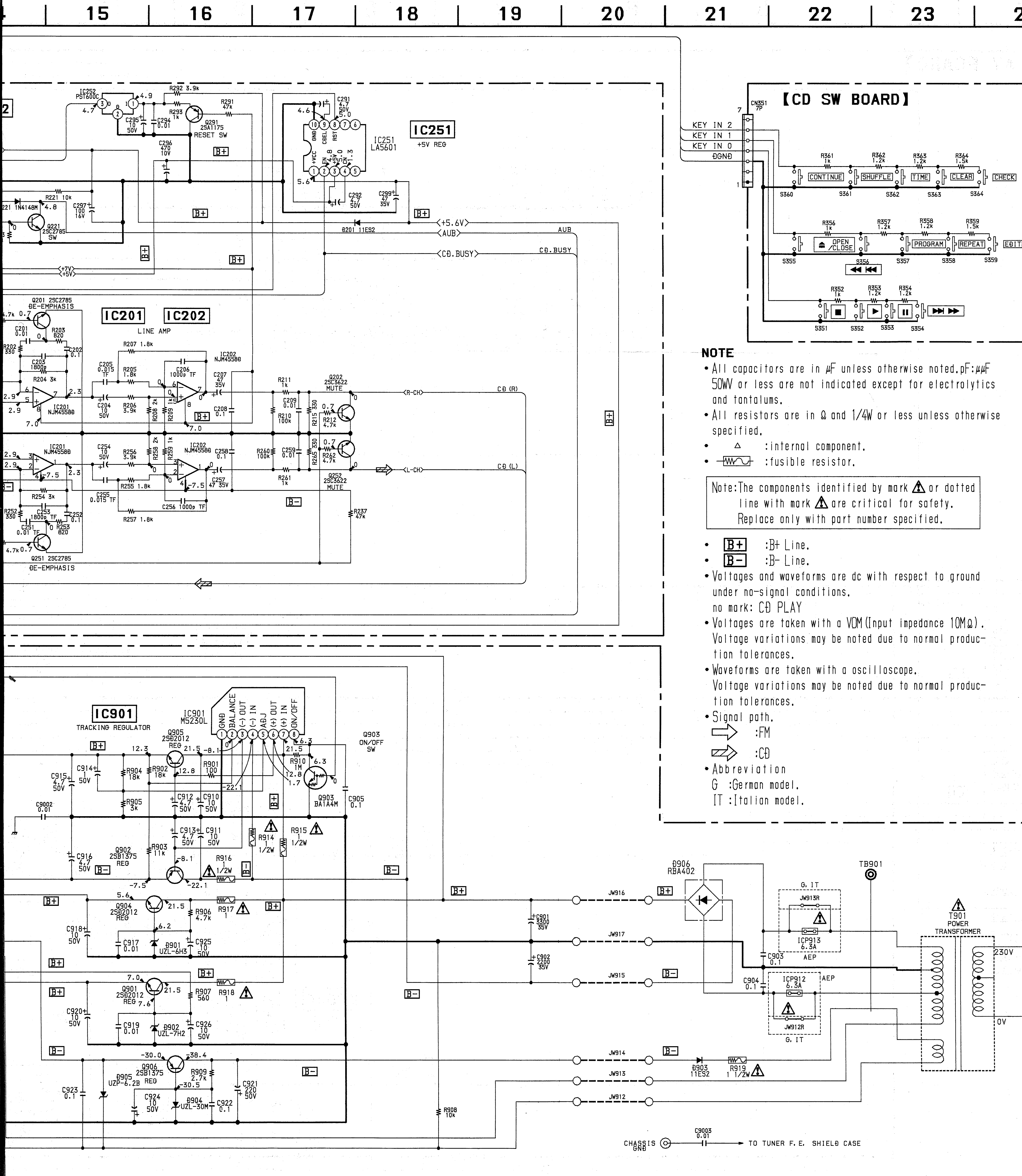
11
12
13
14
15
16
17
18
E
LOADING BOARD CN291
D
BD BOARD CN101
CN201 23P
IC255 LB1641
IC252
RESET
IC252 PST600C
Q291 2SA1175 RESET SW
IC251
LA5601
+5V REG
IC203
D/A CONV
IC203 TDA1545P
IC201
IC202
LINE AMP
IC201 NJM4558D
IC202 NJM4558D
Q201 2SC2785 DE-EMPHASIS
Q251 2SC2785 DE-EMPHASIS
Q205 BN1A4M EMPHASIS SW
Q203 BA1A4M MUTE SW
Q204 BN1A4M MUTE SW
Q202 2SC3622 MUTE
Q252 2SC3622 MUTE
Q221 2SC2785 SW
D221 1N4148M
D201 11ES2
ICSW
RESET
AUBIN
AUBOUT
+5V
+7V
R-CH
L-CH
IC901
TRACKING REGULATOR
IC901 M5230L
GND
BALANCE
(-) OUT
(-) IN
ADJ
(+) OUT
(+) IN
ON/OFF
Q905 2SD2012 REG
Q902 2SB1375 REG
Q904 2SD2012 REG
Q901 2SD2012 REG
Q906 2SB1375 REG
Q903 BA1A4M ON/OFF SW
D901 UZL-6H3
D902 UZL-7H2
D904 UZL-30M
D905 UZP-6.2B
RY801
Q803, 804 SW
Q801, 802 RELAY DRIVE
Q803 2SC2785
Q804 2SC2785
Q801 2SC2785
Q802 2SC2785
D801 1N4148M
D802 1N4148M
B+
B-

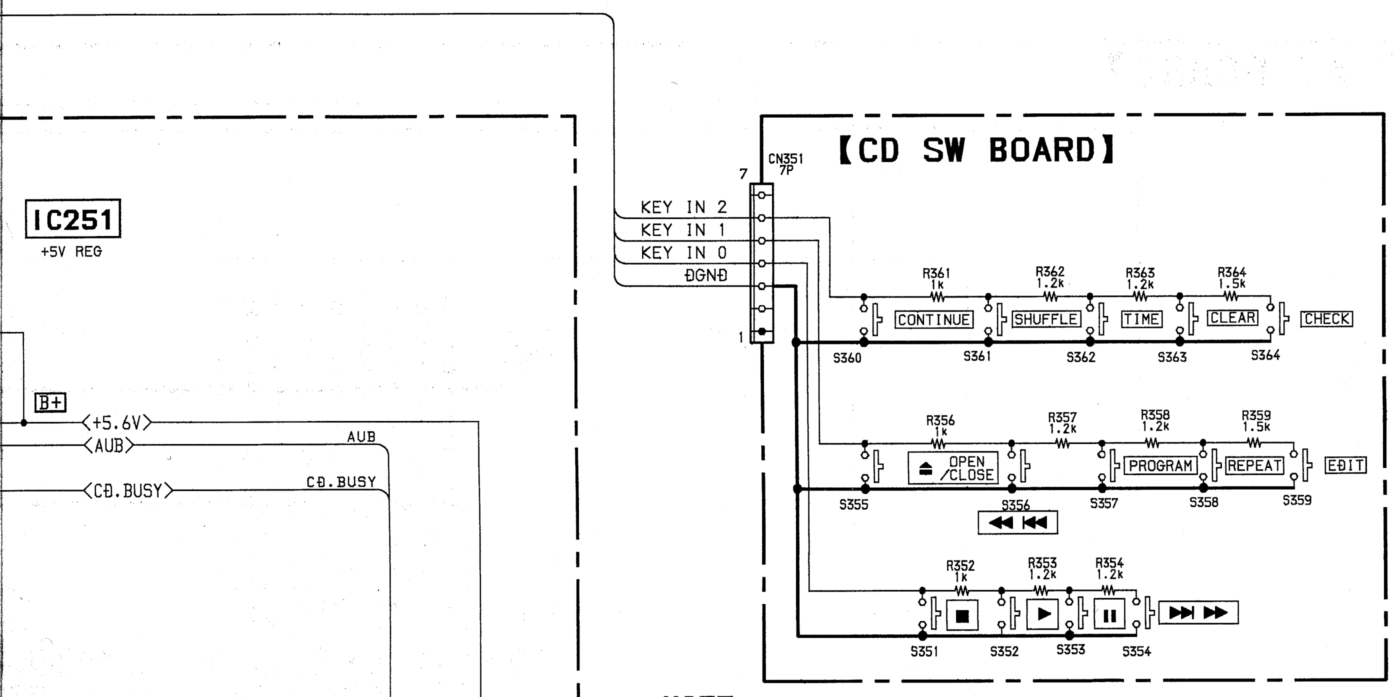

15
16
17
18
19
20
21
22
23
IC252 PST600C
R292 3.9k
R291 47k
R293 1k
Q291 2SA1175 RESET SW
C295 10 50V
C294 0.01
C296 470 10V
C291 4.7 50V
IC251
IC251 LA5601
+5V REG
GND
CBEL
RST
+VCC
EN
C292 4.7 50V
C299 47 35V
D201 11ES2
R221 10k
1N4148M
C297 100 16V
Q221 2SC2785 SW
+5.6V
AUB
CD.BUSY
<+7V>
<+5V>
Q201 2SC2785 DE-EMPHASIS
IC201
IC202
LINE AMP
R207 1.8k
IC202 NJM4558D
C205 0.015 TF
R205 1.8k
C206 1000p TF
C207 47 35V
R203 820
C202 0.1
C203 1800p
R204 3k
IC201 NJM4558D
C204 10 50V
R206 3.9k
R208 2k
R209 1k
C208 0.1
R211 1k
C209 0.01
R210 100k
R215 330
Q202 2SC3622 MUTE
R212 4.7k
R-CH
CD (R)
C254 10 50V
R256 3.9k
R258 2k
R259 1k
C258 0.1
R260 100k
C259 0.01
R265 330
R262 4.7k
Q252 2SC3622 MUTE
L-CH
CD (L)
R261 1k
R255 1.8k
C255 0.015 TF
C257 47 35V
C256 1000p TF
R254 3k
R252 330
C253 1800p TF
C252 0.1
C251 0.01 TF
R253 820
R257 1.8k
R237 47k
Q251 2SC2785 DE-EMPHASIS
B+
B−
CN351 7P
[CD SW BOARD]
KEY IN 2
KEY IN 1
KEY IN 0
DGND
R361 1k
R362 1.2k
R363 1.2k
R364 1.5k
CONTINUE
SHUFFLE
TIME
CLEAR
CHECK
S360
S361
S362
S363
S364
R356 1k
R357 1.2k
R358 1.2k
R359 1.5k
OPEN/CLOSE
PROGRAM
REPEAT
EDIT
S355
S356
S357
S358
S359
R352 1k
R353 1.2k
R354 1.2k
S351
S352
S353
S354
IC901
TRACKING REGULATOR
IC901 M5230L
GND
BALANCE
(-) OUT
(-) IN
ADJ
(+) OUT
(+) IN
ON/OFF
Q905 2SD2012 REG
R901 100
R904 18k
R902 18k
R910 1M
Q903 ON/OFF SW
Q903 BA1A4M
C905 0.1
C915 4.7 50V
C914 1 50V
R905 3k
C912 4.7 50V
C910 10 50V
C9002 0.01
C913 4.7 50V
C911 10 50V
R914 1 1/2W
R915 1 1/2W
R903 11k
C916 4.7 50V
Q902 2SB1375 REG
R916 1 1/2W
Q904 2SD2012 REG
R906 4.7k
R917
C918 10 50V
C917 0.01
D901 UZL-6H3
C925 10 50V
Q901 2SD2012 REG
R907 560
R918 1
C920 10 50V
C919 0.01
D902 UZL-7H2
C926 10 50V
Q906 2SB1375 REG
D905 UZP-6.2B
R909 2.7k
C921 220 50V
C923 0.1
C924 10 50V
D904 UZL-30M
C922 0.1
R908 10k
C901 3300 35V
C902 2200 35V
JW916
JW917
JW915
JW914
JW913
JW912
D906 RBA402
TB901
G, IT
JW913R
ICP913 6.3A
AEP
C903 0.1
C904 0.1
ICP912 6.3A
JW912R
T901 POWER TRANSFORMER
230V
0V
D903 11ES2
R919 1 1/2W
CHASSIS GND
C9003 0.01
TO TUNER F.E. SHIELD CASE

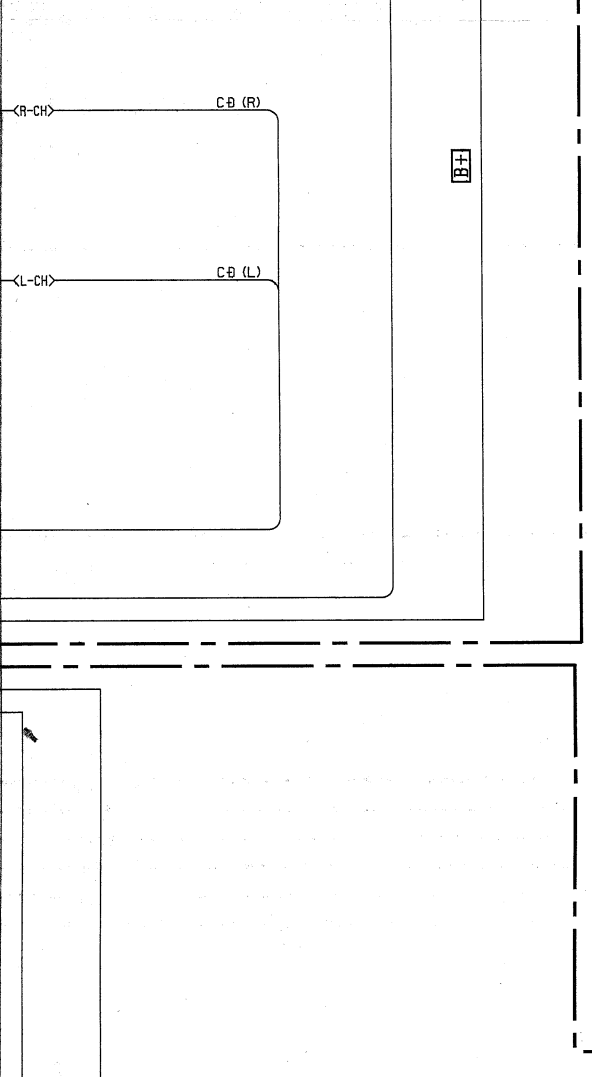
NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ :internal component.
- ⏛ :fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- B+ :B+ Line.
- B− :B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: CD PLAY
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ :FM
  ⇨ :CD
- Abbreviation
  G :German model.
  IT :Italian model.


IC251
+5V REG
B+
<+5.6V>
<AUB>
AUB
<CD.BUSY>
CD.BUSY
【CD SW BOARD】
CN351 7P
7
1
KEY IN 2
KEY IN 1
KEY IN 0
DGND
R361 1k
R362 1.2k
R363 1.2k
R364 1.5k
CONTINUE
SHUFFLE
TIME
CLEAR
CHECK
S360
S361
S362
S363
S364
R356 1k
R357 1.2k
R358 1.2k
R359 1.5k
OPEN /CLOSE
PROGRAM
REPEAT
EDIT
S355
S356
S357
S358
S359
R352 1k
R353 1.2k
R354 1.2k
S351
S352
S353
S354

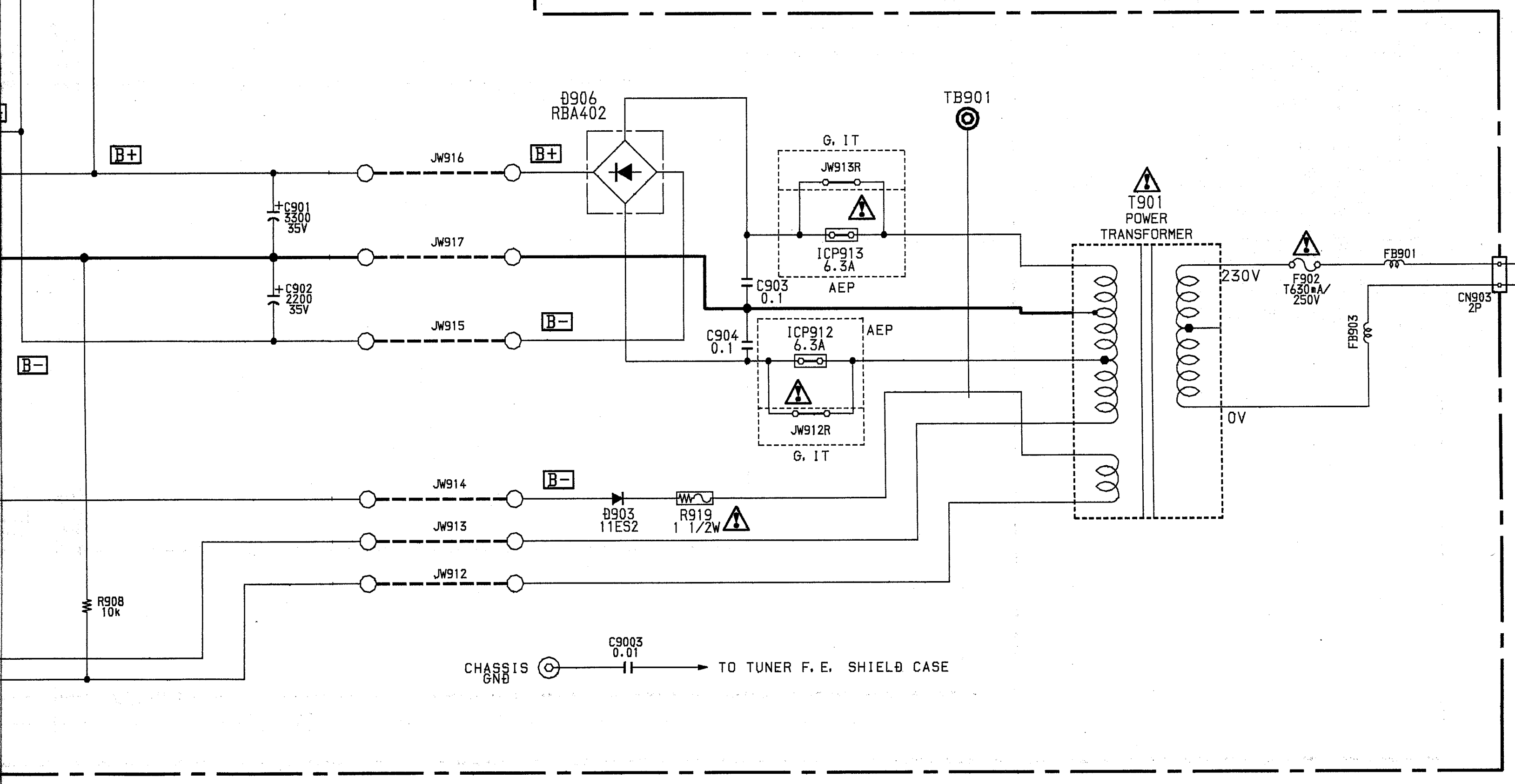


NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ :internal component.
- -ʍʍ∽- :fusible resistor.

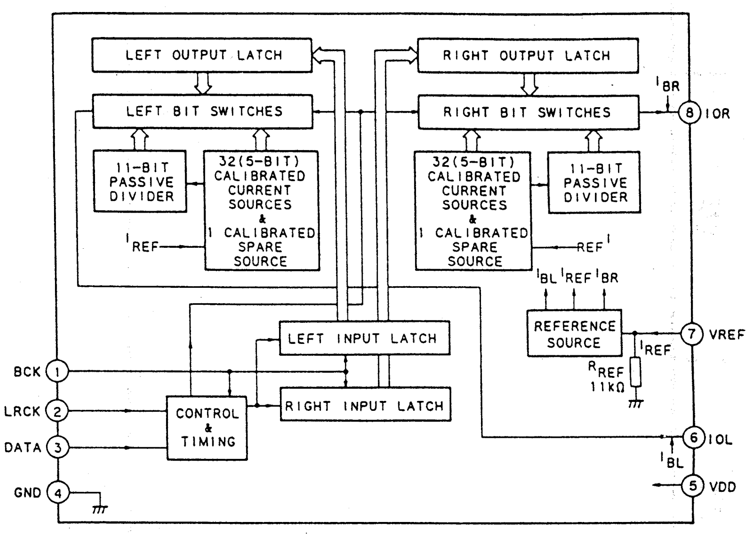
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- B+ :B+ Line.
- B- :B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: CD PLAY
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ :FM
  ⇨ :CD
- Abbreviation
  G :German model.
  IT :Italian model.

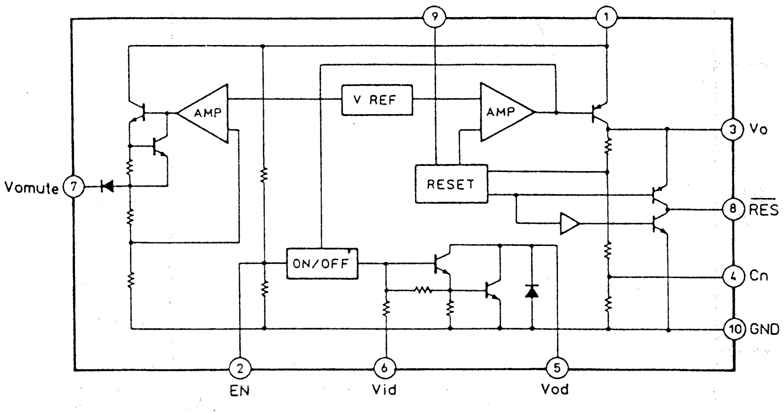

D906 RBA402
B+
JW916
C901 3300 35V
JW917
C902 2200 35V
JW915
B-
B-
TB901
G, IT
JW913R
ICP913 6.3A
AEP
C903 0.1
C904 0.1
ICP912 6.3A
AEP
JW912R
G, IT
T901 POWER TRANSFORMER
230V
0V
F902 T630mA/ 250V
FB901
FB903
CN903 2P
CNP901 AC IN
JW914
D903 11ES2
R919 1 1/2W
JW913
JW912
R908 10k
CHASSIS GND
C9003 0.01
TO TUNER F.E. SHIELD CASE

- **IC Block Diagrams**

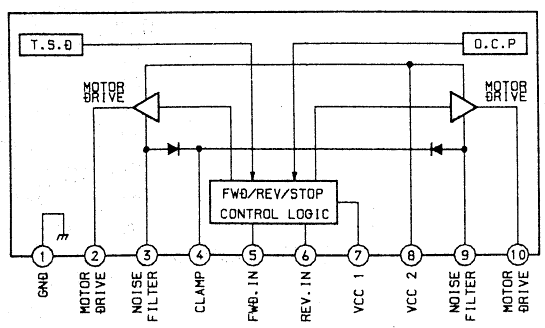
IC203 TDA1545P


LEFT OUTPUT LATCH
RIGHT OUTPUT LATCH
LEFT BIT SWITCHES
RIGHT BIT SWITCHES
IBR
8 IOR
11-BIT PASSIVE DIVIDER
32(5-BIT) CALIBRATED CURRENT SOURCES & 1 CALIBRATED SPARE SOURCE
IREF
REFERENCE SOURCE
RREF 11kΩ
7 VREF
LEFT INPUT LATCH
RIGHT INPUT LATCH
CONTROL & TIMING
BCK 1
LRCK 2
DATA 3
GND 4
6 IOL
IBL
5 VDD

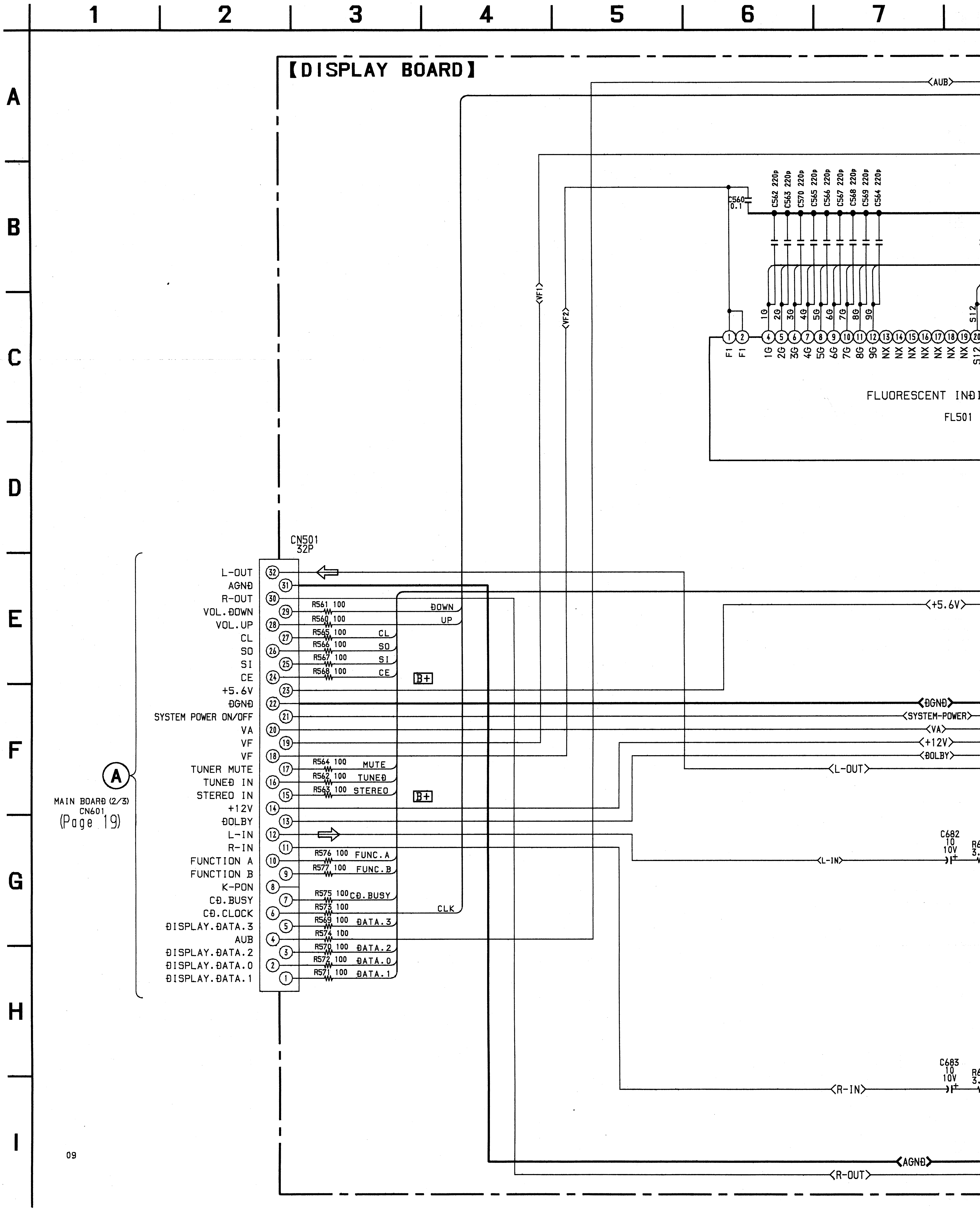
IC251 LA5601

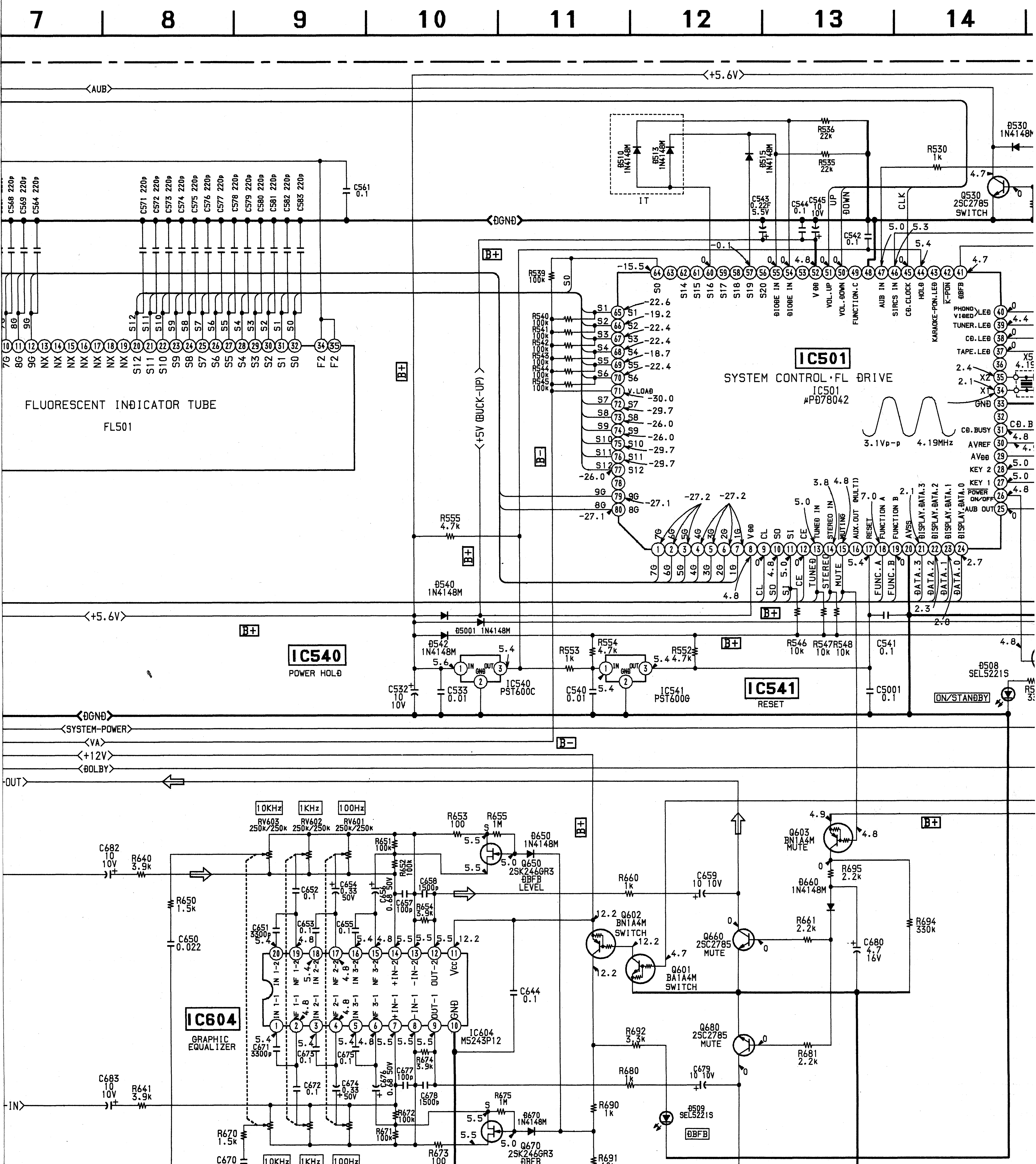

Cd 9
Vin 1
AMP
V REF
AMP
3 Vo
Vomute 7
RESET
8 RES
ON/OFF
4 Cn
10 GND
2 EN
6 Vid
5 Vod

IC255 LB1641

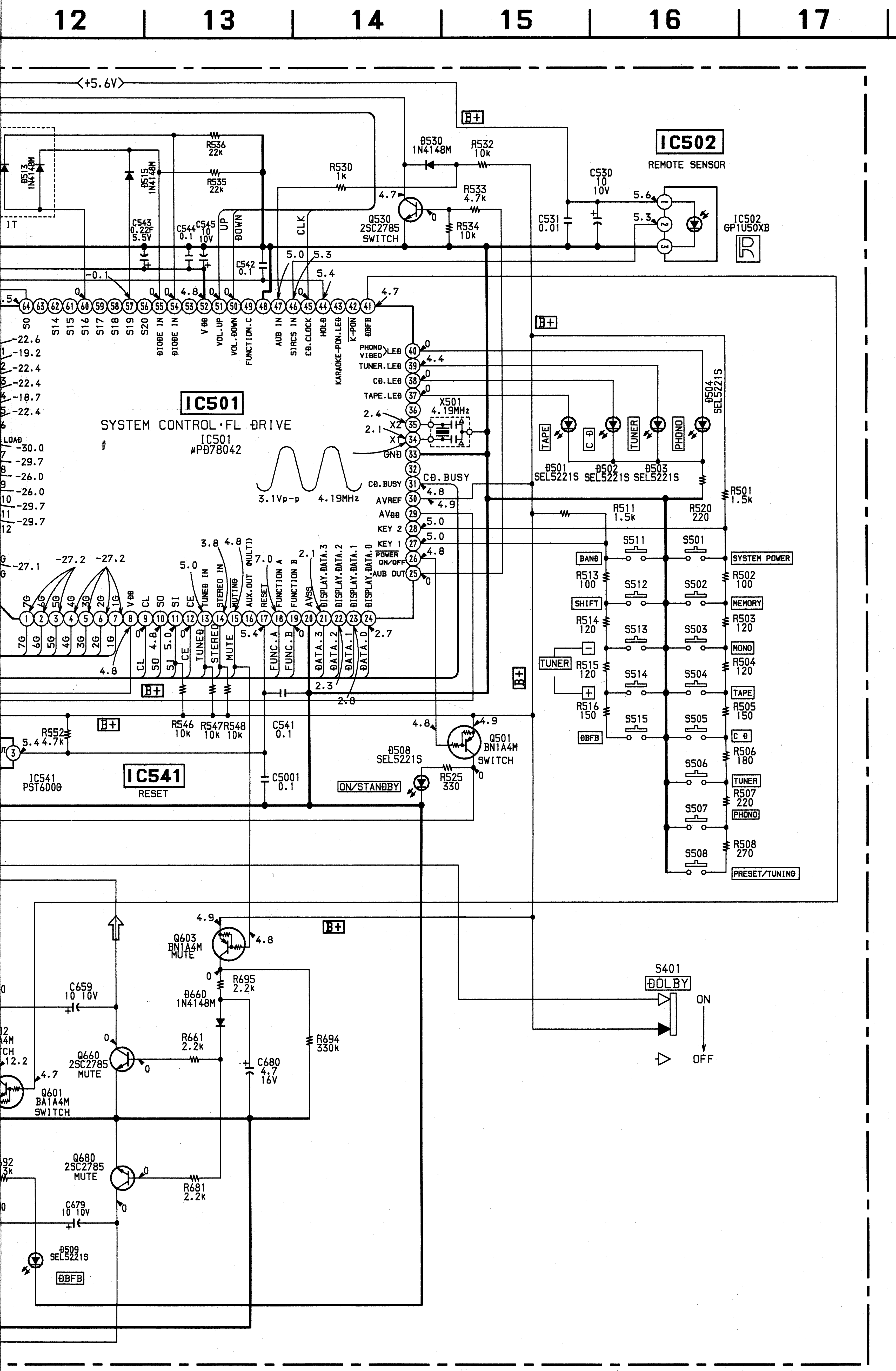

T.S.D
O.C.P
MOTOR DRIVE
MOTOR DRIVE
FWD/REV/STOP CONTROL LOGIC
1 GND
2 MOTOR DRIVE
3 NOISE FILTER
4 CLAMP
5 FWD. IN
6 REV. IN
7 VCC 1
8 VCC 2
9 NOISE FILTER
10 MOTOR DRIVE

SCHEMATIC DIAGRAM — DISPLAY SECTION —
- **See page 4 for IC Pin Functions. (IC501)**


1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
【DISPLAY BOARD】
<AUB>
<VF1>
<VF2>
C560 0.1
C562 220p
C563 220p
C570 220p
C565 220p
C566 220p
C567 220p
C568 220p
C569 220p
C564 220p
1G 2G 3G 4G 5G 6G 7G 8G 9G
S12
F1 F1
NX
FLUORESCENT INDI
FL501
CN501
32P
L-OUT
AGND
R-OUT
VOL.DOWN
VOL.UP
CL
SO
SI
CE
+5.6V
DGND
SYSTEM POWER ON/OFF
VA
VF
VF
TUNER MUTE
TUNED IN
STEREO IN
+12V
DOLBY
L-IN
R-IN
FUNCTION A
FUNCTION B
K-PON
CD.BUSY
CD.CLOCK
DISPLAY.DATA.3
AUB
DISPLAY.DATA.2
DISPLAY.DATA.0
DISPLAY.DATA.1
A
MAIN BOARD (2/3)
CN601
(Page 19)
R561 100
R560 100
R565 100
R566 100
R567 100
R568 100
R564 100
R562 100
R563 100
R576 100
R577 100
R575 100
R573 100
R569 100
R574 100
R570 100
R572 100
R571 100
DOWN
UP
CL
SO
SI
CE
B+
MUTE
TUNED
STEREO
B+
FUNC.A
FUNC.B
CD.BUSY
CLK
DATA.3
DATA.2
DATA.0
DATA.1
<+5.6V>
<DGND>
<SYSTEM-POWER>
<VA>
<+12V>
<DOLBY>
<L-OUT>
<L-IN>
C682
10
10V
<R-IN>
C683
10
10V
<AGND>
<R-OUT>
09

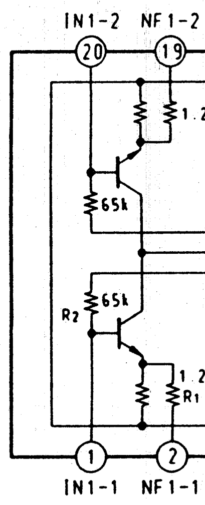


7
8
9
10
11
12
13
14
<AUB>
<+5.6V>
<DGND>
D510 1N4148M
D513 1N4148M
D515 1N4148M
IT
R536 22k
R535 22k
R530 1k
D530 1N4148M
Q530 2SC2785 SWITCH
C543 0.22F 5.5V
C544 0.1
C545 10 10V
C542 0.1
UP
DOWN
CLK
C561 0.1
C568 220p
C569 220p
C564 220p
C571 220p
C572 220p
C573 220p
C574 220p
C575 220p
C576 220p
C577 220p
C578 220p
C579 220p
C580 220p
C581 220p
C582 220p
C583 220p
FLUORESCENT INDICATOR TUBE
FL501
IC501
SYSTEM CONTROL·FL DRIVE
IC501
µPD78042
3.1Vp-p
4.19MHz
R539 100k
R540 100k
R541 100k
R542 100k
R543 100k
R544 100k
R545 100k
<+5V (BUCK-UP)>
B+
B−
V.LOAD
DIODE IN
VDD
VOL.UP
VOL.DOWN
FUNCTION.C
AUB IN
SIRCS IN
CD.CLOCK
HOLD
KARAOKE-PON.LED
K-PON
DBFB
PHONO VIDEO LED
TUNER.LED
CD.LED
TAPE.LED
X2
X1
GND
CD.BUSY
AVREF
AVDD
KEY 2
KEY 1
POWER ON/OFF
AUB OUT
TUNED IN
STEREO IN
MUTING
AUX.OUT (MULTI)
RESET
FUNCTION A
FUNCTION B
AVSS
DISPLAY.DATA.3
DISPLAY.DATA.2
DISPLAY.DATA.1
DISPLAY.DATA.0
CL
SO
SI
CE
TUNED
STEREO
MUTE
FUNC.A
FUNC.B
DATA.3
DATA.2
DATA.1
DATA.0
R555 4.7k
D540 1N4148M
D5001 1N4148M
D542 1N4148M
IC540
POWER HOLD
IC540 PST600C
C532 10 10V
C533 0.01
R553 1k
R554 4.7k
R552 4.7k
C540 0.01
IC541 PST600G
IC541
RESET
R546 10k
R547 10k
R548 10k
C541 0.1
C5001 0.1
D508 SEL5221S
ON/STANDBY
<SYSTEM-POWER>
<VA>
<+12V>
<DOLBY>
-OUT>
-IN>
<AGND>
10KHz
1KHz
100Hz
RV603 250k/250k
RV602 250k/250k
RV601 250k/250k
R653 100
R655 1M
D650 1N4148M
Q650 2SK246GR3 DBFB LEVEL
R651 100k
R652 100k
C658 1500p
C657 100p
R654 3.9k
C656 0.68 50V
C652 0.1
C654 0.33 50V
C653 0.1
C655 0.1
C651 3300p
C682 10 10V
R640 3.9k
R650 1.5k
C650 0.022
IC604
GRAPHIC EQUALIZER
IC604 M5243P12
C644 0.1
C671 3300p
C673 0.1
C675 0.1
C672 0.1
C674 0.33 50V
C676 0.68 50V
C677 100p
C678 1500p
R674 3.9k
R672 100k
R671 100k
R675 1M
D670 1N4148M
Q670 2SK246GR3 DBFB LEVEL
R673 100
C683 10 10V
R641 3.9k
R670 1.5k
C670 0.022
R660 1k
C659 10 10V
Q602 BN1A4M SWITCH
Q601 BA1A4M SWITCH
Q603 BN1A4M MUTE
R695 2.2k
D660 1N4148M
R661 2.2k
Q660 2SC2785 MUTE
C680 4.7 16V
R694 330k
R692 3.3k
Q680 2SC2785 MUTE
R681 2.2k
R680 1k
C679 10 10V
D509 SEL5221S
DBFB
R690 1k
R691 10k


12
13
14
15
16
17
<+5.6V>
B+
IC502
REMOTE SENSOR
IC502
GP1U50XB
D530
1N4148M
R532
10k
R530
1k
R533
4.7k
R534
10k
Q530
2SC2785
SWITCH
C530
10
10V
C531
0.01
R536
22k
R535
22k
D513
1N4148M
D515
1N4148M
IT
C543
0.22F
5.5V
C544
0.1
C545
10
10V
C542
0.1
UP
DOWN
CLK
IC501
SYSTEM CONTROL·FL DRIVE
IC501
µPD78042
X501
4.19MHz
3.1Vp-p
4.19MHz
PHONO VIDEO LED
TUNER.LED
CD.LED
TAPE.LED
X2
X1
GND
CD.BUSY
AVREF
AVDD
KEY 2
KEY 1
POWER ON/OFF
AUB OUT
V DD
VOL.UP
VOL.DOWN
FUNCTION.C
AUB IN
SIRCS IN
CD.CLOCK
HOLD
KARAOKE-PON.LED
K-PON
DBFB
DIOBE IN
TUNED IN
STEREO IN
MUTING
AUX.OUT (MULTI)
RESET
FUNCTION A
FUNCTION B
AVSS
DISPLAY.DATA.3
DISPLAY.DATA.2
DISPLAY.DATA.1
DISPLAY.DATA.0
CL
SO
SI
CE
TUNED
STEREO
MUTE
FUNC.A
FUNC.B
DATA.3
DATA.2
DATA.1
DATA.0
TAPE
CD
TUNER
PHONO
D501
SEL5221S
D502
SEL5221S
D503
SEL5221S
D504
SEL5221S
R501
1.5k
R511
1.5k
R520
220
S511
S512
S513
S514
S515
S501
S502
S503
S504
S505
S506
S507
S508
BAND
R513
100
SHIFT
R514
120
TUNER
R515
120
R516
150
DBFB
SYSTEM POWER
R502
100
MEMORY
R503
120
MONO
R504
120
TAPE
R505
150
CD
R506
180
TUNER
R507
220
PHONO
R508
270
PRESET/TUNING
R546
10k
R547
10k
R548
10k
C541
0.1
C5001
0.1
R552
4.7k
IC541
PST600G
IC541
RESET
D508
SEL5221S
Q501
BN1A4M
SWITCH
R525
330
ON/STANDBY
Q603
BN1A4M
MUTE
R695
2.2k
D660
1N4148M
R694
330k
C659
10 10V
Q660
2SC2785
MUTE
R661
2.2k
C680
4.7
16V
Q601
BA1A4M
SWITCH
Q680
2SC2785
MUTE
R681
2.2k
C679
10 10V
D509
SEL5221S
DBFB
S401
DOLBY
ON
OFF

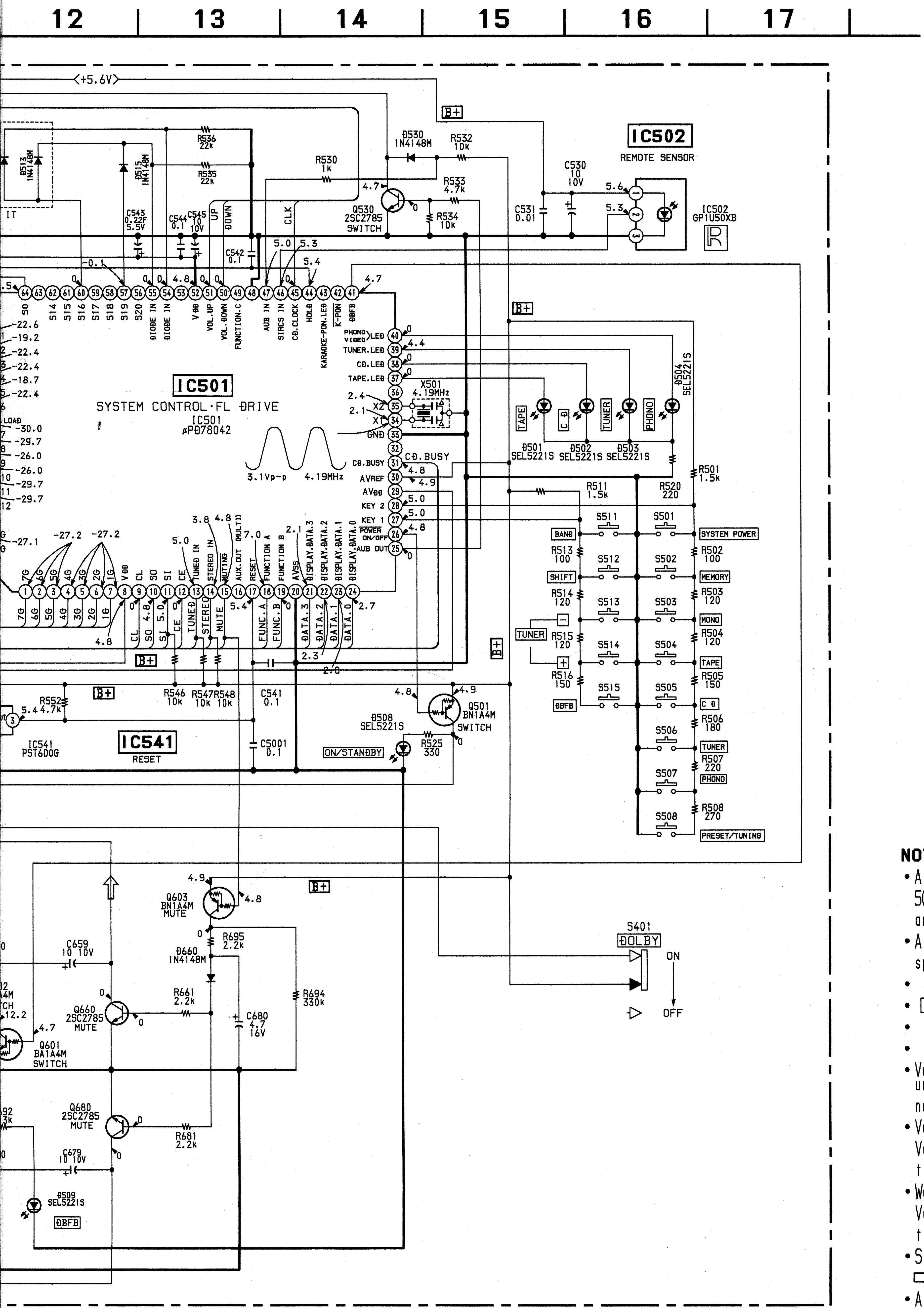
• IC Block Diagram

IC604 M5243P1


IN1-2
NF1-2
20
19
65k
R2
65k
R1
1
2
IN1-1
NF1-1

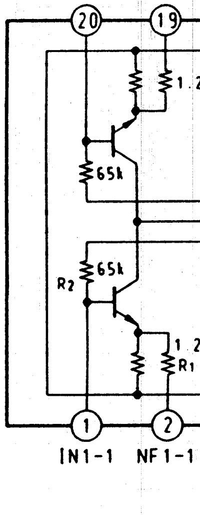
NOTE

- All capacitors are in μF unl
50WV or less are not indicat
and tantalums.
- All resistors are in Ω and 1
specified.
- △ :internal componen
- ▭ :panel designation
- B+ :B+ Line.
- B- :B- Line.
- Voltages and waveforms are d
under no-signal (deturned) con
no mark: FM
- Voltages are taken with a VO
Voltage variations may be no
tion tolerances.
- Waveforms are taken with a o
Voltage variations may be no
tion tolerances.
- Signal path.
⇨ :FM
- Abbreviation
IT :Italian model.


12
13
14
15
16
17
<+5.6V>
B+
IC502
REMOTE SENSOR
IC502
GP1U50XB
IC501
SYSTEM CONTROL·FL DRIVE
IC501
μPD78042
3.1Vp-p
4.19MHz
X501
4.19MHz
Đ530 1N4148M
R532 10k
R533 4.7k
R534 10k
R530 1k
R536 22k
R535 22k
Q530 2SC2785 SWITCH
C530 10 10V
C531 0.01
Đ513 1N4148M
Đ515 1N4148M
C543 0.22F 5.5V
C544 0.1
C545 10 10V
C542 0.1
IT
PHONO VIDEO LED
TUNER LED
CD LED
TAPE LED
GND
CD BUSY
AVREF
AVDD
KEY 2
KEY 1
POWER ON/OFF
AUB OUT
VDD
VOL.UP
VOL.DOWN
FUNCTION.C
AUB IN
SIRCS IN
CD.CLOCK
HOLD
KARAOKE-PON.LED
K-PON
DBFB
TUNED IN
STEREO IN
MUTING
AUX.OUT (MULTI)
RESET
FUNCTION A
FUNCTION B
AVSS
DISPLAY.DATA.3
DISPLAY.DATA.2
DISPLAY.DATA.1
DISPLAY.DATA.0
TAPE
C D
TUNER
PHONO
Đ501 SEL5221S
Đ502 SEL5221S
Đ503 SEL5221S
Đ504 SEL5221S
R501 1.5k
R511 1.5k
R520 220
S511
S501
SYSTEM POWER
BAND
R513 100
S512
S502
R502 100
SHIFT
MEMORY
R514 120
S513
S503
R503 120
MONO
TUNER
R515 120
S514
S504
R504 120
TAPE
R516 150
S515
S505
R505 150
DBFB
C D
S506
R506 180
TUNER
S507
R507 220
PHONO
S508
R508 270
PRESET/TUNING
R546 10k
R547 10k
R548 10k
C541 0.1
C5001 0.1
R552 4.7k
IC541 PST600G
IC541
RESET
Q501 BN1A4M SWITCH
Đ508 SEL5221S
R525 330
ON/STANDBY
Q603 BN1A4M MUTE
R695 2.2k
Đ660 1N4148M
R661 2.2k
R694 330k
C680 4.7 16V
C659 10 10V
Q660 2SC2785 MUTE
Q601 BA1A4M SWITCH
Q680 2SC2785 MUTE
R681 2.2k
C679 10 10V
Đ509 SEL5221S
DBFB
S401
DOLBY
ON
OFF

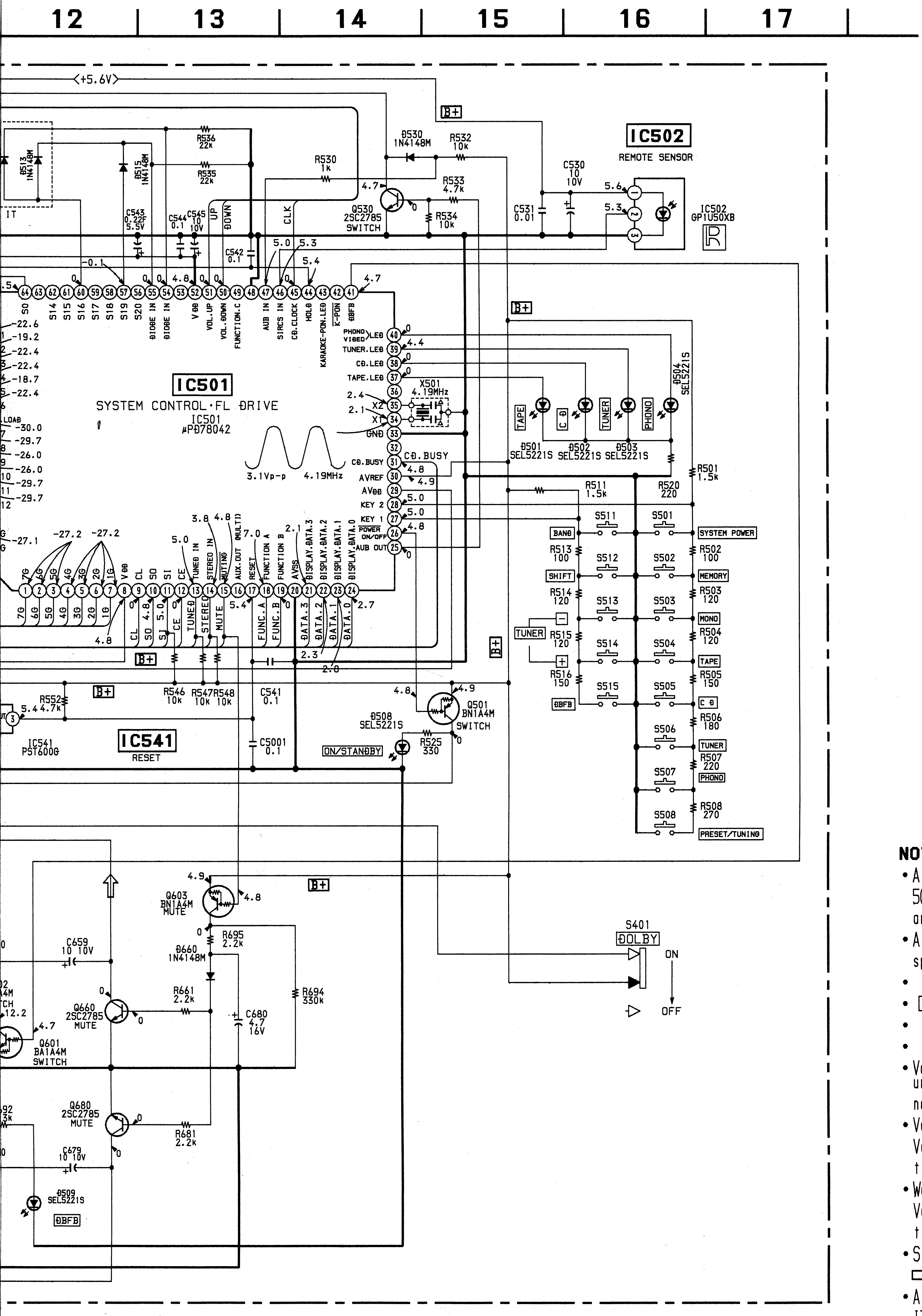
• **IC Block Diagram**

IC604 M5243P1


IN1-2
NF1-2
65k
65k
R2
R1
IN1-1
NF1-1

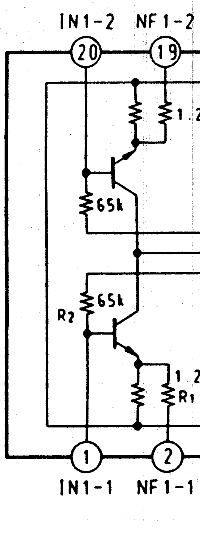
NOTE

- All capacitors are in μF unl
  50WV or less are not indicat
  and tantalums.
- All resistors are in Ω and 1
  specified.
- △ :internal componen
- ☐ :panel designation
- B+ :B+ Line.
- B- :B- Line.
- Voltages and waveforms are d
  under no-signal (deturned) con
  no mark: FM
- Voltages are taken with a VO
  Voltage variations may be no
  tion tolerances.
- Waveforms are taken with a o
  Voltage variations may be no
  tion tolerances.
- Signal path.
  ⇨ :FM
- Abbreviation
  IT :Italian model.


12
13
14
15
16
17
<+5.6V>
B+
IC502
REMOTE SENSOR
IC502
GP1U50XB
Ɖ530
1N4148M
R532
10k
R530
1k
R533
4.7k
Q530
2SC2785
SWITCH
R534
10k
C530
10
10V
C531
0.01
R536
22k
R535
22k
Ɖ513
1N4148M
Ɖ515
1N4148M
IT
C543
0.22F
5.5V
C544
0.1
C545
10
10V
C542
0.1
UP
ƉOWN
CLK
IC501
SYSTEM CONTROL·FL ƉRIVE
IC501
μPƉ78042
X501
4.19MHz
3.1Vp-p
4.19MHz
CƉ.BUSY
Ɖ501
SEL5221S
Ɖ502
SEL5221S
Ɖ503
SEL5221S
Ɖ504
SEL5221S
TAPE
C Ɖ
TUNER
PHONO
R501
1.5k
R511
1.5k
R520
220
S511
S501
BANƉ
SYSTEM POWER
R513
100
S512
S502
R502
100
SHIFT
MEMORY
R514
120
S513
S503
R503
120
MONO
TUNER
R515
120
S514
S504
R504
120
TAPE
R516
150
S515
S505
R505
150
ƉBFB
C Ɖ
S506
R506
180
TUNER
S507
R507
220
PHONO
S508
R508
270
PRESET/TUNINƓ
IC541
RESET
IC541
PST600Ɠ
R552
4.7k
R546
10k
R547
10k
R548
10k
C541
0.1
C5001
0.1
Q501
BN1A4M
SWITCH
Ɖ508
SEL5221S
ON/STANƉBY
R525
330
Q603
BN1A4M
MUTE
R695
2.2k
Ɖ660
1N4148M
S401
ƉOLBY
ON
OFF
C659
10 10V
R661
2.2k
Q660
2SC2785
MUTE
R694
330k
C680
4.7
16V
Q601
BA1A4M
SWITCH
Q680
2SC2785
MUTE
R681
2.2k
C679
10 10V
Ɖ509
SEL5221S
ƉBFB

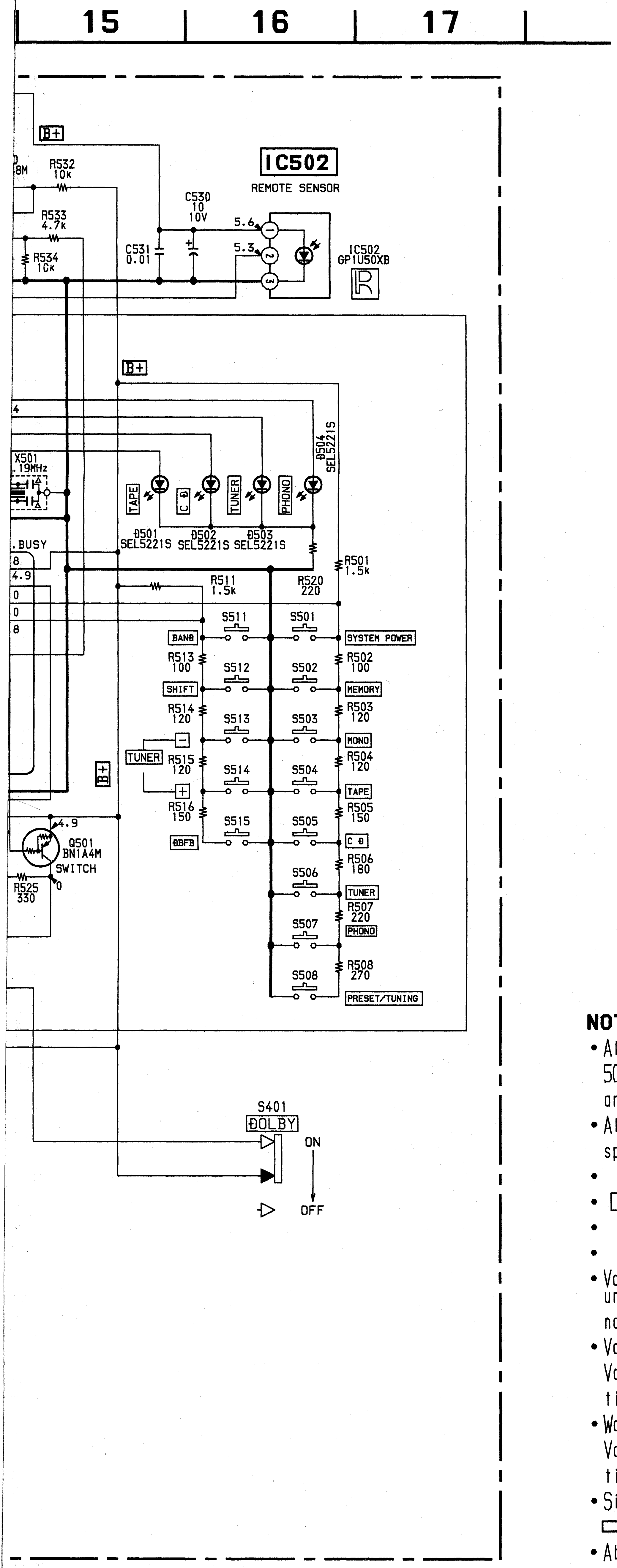
• **IC Block Diagran**

IC604 M5243P1


IN1-2
NF1-2
20
19
1.2
65k
65k
R2
1.2
R1
1
2
IN1-1
NF1-1

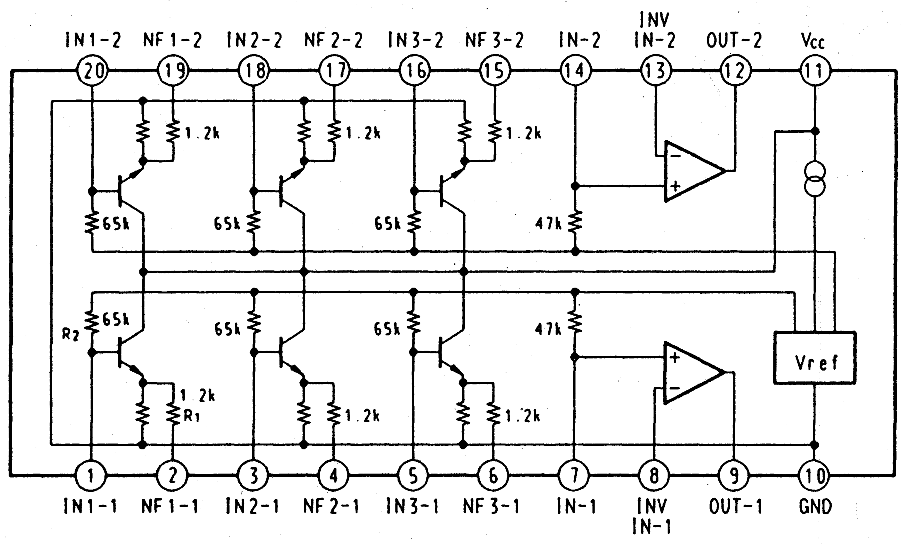
NOTE

- All capacitors are in μF unl
  50WV or less are not indicat
  and tantalums.
- All resistors are in Ω and 1
  specified.
- △ :internal componen
- ▭ :panel designation
- B+ :B+ Line.
- B- :B- Line.
- Voltages and waveforms are d
  under no-signal (deturned) con
  no mark: FM
- Voltages are taken with a VO
  Voltage variations may be no
  tion tolerances.
- Waveforms are taken with a o
  Voltage variations may be no
  tion tolerances.
- Signal path.
  ⇨ :FM
- Abbreviation
  IT :Italian model.


15
16
17
IC502
REMOTE SENSOR
B+
R532 10k
R533 4.7k
R534 10k
C530 10 10V
C531 0.01
5.6
5.3
IC502 GP1U50XB
X501 .19MHz
.BUSY
4.9
D501 SEL5221S
D502 SEL5221S
D503 SEL5221S
D504 SEL5221S
TAPE
C θ
TUNER
PHONO
R501 1.5k
R511 1.5k
R520 220
S511
S501
BAND
SYSTEM POWER
R513 100
S512
S502
R502 100
SHIFT
MEMORY
R514 120
S513
S503
R503 120
MONO
TUNER
R515 120
S514
S504
R504 120
TAPE
R516 150
S515
S505
R505 150
DBFB
C θ
S506
R506 180
TUNER
S507
R507 220
PHONO
S508
R508 270
PRESET/TUNING
Q501 BN1A4M SWITCH
R525 330
S401
DOLBY
ON
OFF

- **IC Block Diagram**

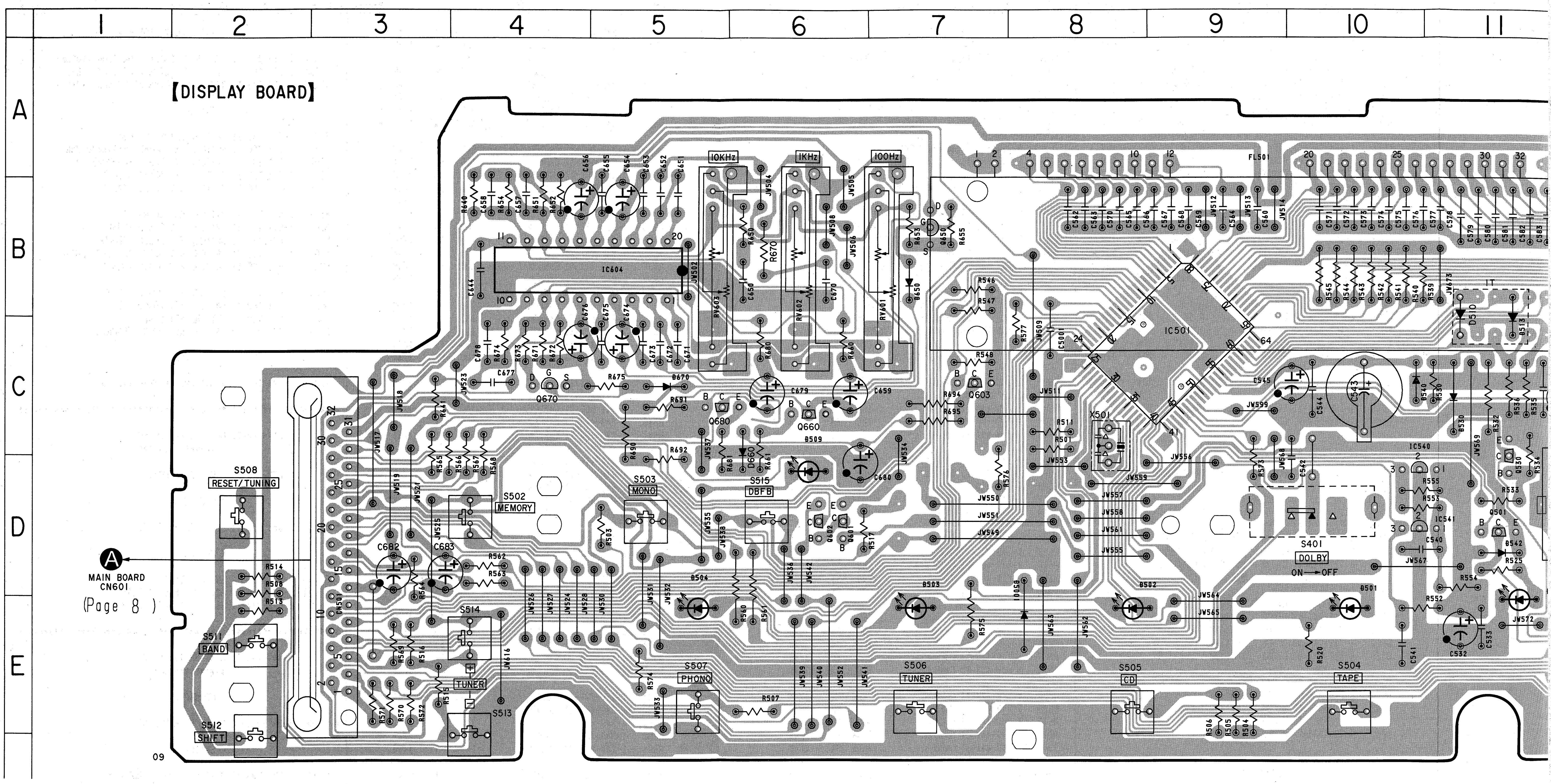
IC604 M5243P12

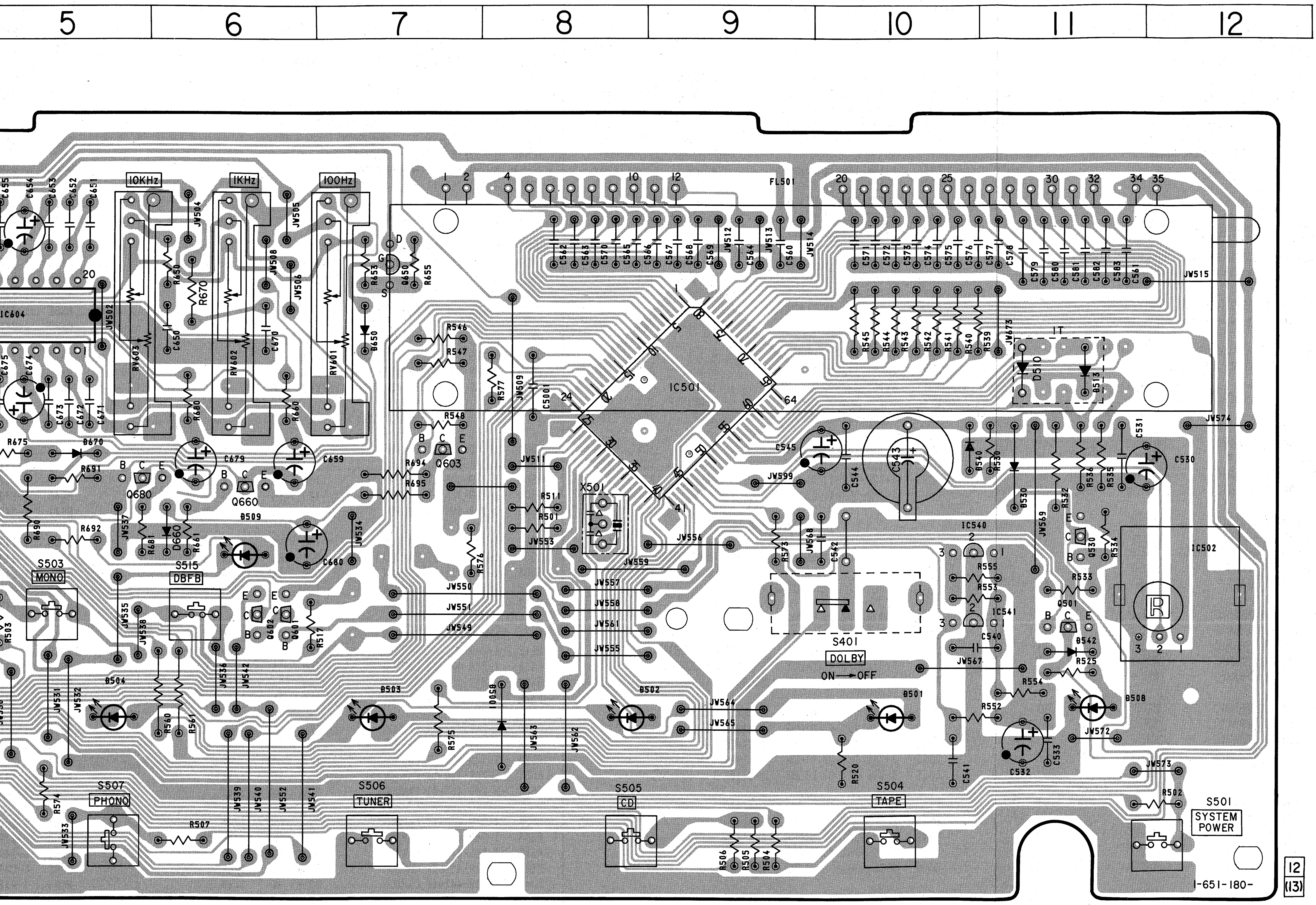

IN1-2
NF1-2
IN2-2
NF2-2
IN3-2
NF3-2
IN-2
INV IN-2
OUT-2
Vcc
20
19
18
17
16
15
14
13
12
11
1.2k
65k
47k
R2
R1
Vref
1
2
3
4
5
6
7
8
9
10
IN1-1
NF1-1
IN2-1
NF2-1
IN3-1
NF3-1
IN-1
INV IN-1
OUT-1
GND

NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ :internal component.
- ☐ :panel designation.
- B+ :B+ Line.
- B- :B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal (deturned) conditions.
  no mark: FM
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ :FM
- Abbreviation
  IT :Italian model.

PRINTED WIRING BOARD — DISPLAY SECTION —


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
【DISPLAY BOARD】
A
MAIN BOARD
CN601
(Page 8)
S508
RESET/TUNING
S502
MEMORY
S503
MONO
S515
DBFB
S401
DOLBY
ON → OFF
S511
BAND
S512
SHIFT
S513
TUNER
S514
S507
PHONO
S506
TUNER
S505
CD
S504
TAPE
10KHz
1KHz
100Hz
IC604
IC501
IC540
IC541
FL501
X501
CN501
RV603
RV602
RV601
Q670
Q680
Q660
Q650
Q603
Q601
Q602
Q501
Q530
C682
C683
D510
D660
09


5
6
7
8
9
10
11
12
10KHz
1KHz
100Hz
IC604
IC501
FL501
IC540
IC541
IC502
X501
S503
MONO
S515
DBFB
S401
DOLBY
ON → OFF
S507
PHONO
S506
TUNER
S505
CD
S504
TAPE
S501
SYSTEM
POWER
Q601
Q602
Q603
Q650
Q660
Q680
Q501
Q530
D501
D502
D503
D504
D508
D509
D510
D513
D530
D540
D542
D650
D660
D5001
RV601
RV602
RV603
IT
1-651-180-
12
(13)

- **Semiconductor Location**

Ref. No.	Location
D501	D-10
D502	D-9
D503	D-7
D504	D-5
D508	E-11
D509	C-6
D510	B-11
D513	C-11
D530	C-11
D540	C-11
D542	D-11
D650	B-7
D660	D-6
D670	C-5
D5001	D-8
IC501	C-9
IC502	D-12
IC540	C-11
IC541	D-11
IC604	B-4
Q501	D-11
Q530	D-11
Q601	D-6
Q602	D-6
Q603	C-7
Q650	B-7
Q660	C-6
Q670	C-4
Q680	C-5

Note:
- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- △ : internal component.
- ▨ : Pattern from the side which enable seeing.
- Abbreviation
  IT : Italian model.

ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB..., uPC...: μPC..., uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Abbreviation
  G : German model
  IT : Italian model

Ref. No.	Part No.	Description				Remark
*	A-4369-113-A	CD SW BOARD, COMPLETE *********************				
		< CONNECTOR >				
* CN351	1-569-768-11	SOCKET, CONNECTOR 7P				
		< RESISTOR >				
R352	1-249-417-11	CARBON	1K	5%	1/4W	F
R353	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R354	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R356	1-249-417-11	CARBON	1K	5%	1/4W	F
R357	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R358	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R359	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R361	1-249-417-11	CARBON	1K	5%	1/4W	F
R362	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R363	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R364	1-249-419-11	CARBON	1.5K	5%	1/4W	F
		< SWITCH >				
S351	1-571-760-11	SWITCH, KEY BOARD (■)				
S352	1-571-760-11	SWITCH, KEY BOARD (▷)				
S353	1-571-760-11	SWITCH, KEY BOARD (▯▯)				
S354	1-571-760-11	SWITCH, KEY BOARD (▷▷|, ▶▶)				
S355	1-571-760-11	SWITCH, KEY BOARD (⏏ OPEN/CLOSE)				
S356	1-571-760-11	SWITCH, KEY BOARD (|◁◁, ◀◀)				
S357	1-571-760-11	SWITCH, KEY BOARD (PROGRAM)				
S358	1-571-760-11	SWITCH, KEY BOARD (REPEAT)				
S359	1-571-760-11	SWITCH, KEY BOARD (EDIT)				
S360	1-571-760-11	SWITCH, KEY BOARD (CONTINUE)				
S361	1-571-760-11	SWITCH, KEY BOARD (SHUFFLE)				
S362	1-571-760-11	SWITCH, KEY BOARD (TIME)				
S363	1-571-760-11	SWITCH, KEY BOARD (CLEAR)				
S364	1-571-760-11	SWITCH, KEY BOARD (CHECK)				

****

Ref. No.	Part No.	Description				Remark
*	A-4369-118-A	DISPLAY BOARD, COMPLETE (AEP, G) ********************************				
*	A-4377-169-A	DISPLAY BOARD, COMPLETE (IT) ****************************				
*	4-932-810-11	CUSHION (FL)				
*	4-942-301-01	HOLDER, FL TUBE				
		< CAPACITOR >				
C530	1-126-157-11	ELECT	10uF	20%	16V	
C531	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C532	1-126-157-11	ELECT	10uF	20%	16V	
C533	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C540	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C541	1-164-159-11	CERAMIC	0.1uF		50V	
C542	1-164-159-11	CERAMIC	0.1uF		50V	
C543	1-104-905-11	DOUBLE LAYERS	0.22F		5.5V	
C544	1-164-159-11	CERAMIC	0.1uF		50V	
C545	1-126-157-11	ELECT	10uF	20%	16V	
C560	1-164-159-11	CERAMIC	0.1uF		50V	
C561	1-164-159-11	CERAMIC	0.1uF		50V	
C562	1-162-286-31	CERAMIC	220PF	10%	50V	
C563	1-162-286-31	CERAMIC	220PF	10%	50V	
C564	1-162-286-31	CERAMIC	220PF	10%	50V	
C565	1-162-286-31	CERAMIC	220PF	10%	50V	
C566	1-162-286-31	CERAMIC	220PF	10%	50V	
C567	1-162-286-31	CERAMIC	220PF	10%	50V	
C568	1-162-286-31	CERAMIC	220PF	10%	50V	
C569	1-162-286-31	CERAMIC	220PF	10%	50V	
C570	1-162-286-31	CERAMIC	220PF	10%	50V	
C571	1-162-286-31	CERAMIC	220PF	10%	50V	
C572	1-162-286-31	CERAMIC	220PF	10%	50V	
C573	1-162-286-31	CERAMIC	220PF	10%	50V	
C574	1-162-286-31	CERAMIC	220PF	10%	50V	
C575	1-162-286-31	CERAMIC	220PF	10%	50V	
C576	1-162-286-31	CERAMIC	220PF	10%	50V	
C577	1-162-286-31	CERAMIC	220PF	10%	50V	
C578	1-162-286-31	CERAMIC	220PF	10%	50V	
C579	1-162-286-31	CERAMIC	220PF	10%	50V	
C580	1-162-286-31	CERAMIC	220PF	10%	50V	
C581	1-162-286-31	CERAMIC	220PF	10%	50V	
C582	1-162-286-31	CERAMIC	220PF	10%	50V	

Ref. No.	Part No.	Description				Remark
C583	1-162-286-31	CERAMIC	220PF	10%	50V	
C644	1-164-159-11	CERAMIC	0.1uF		50V	
C650	1-161-494-00	CERAMIC	0.022uF		25V	
C651	1-162-303-11	CERAMIC	0.0033uF	30%	16V	
C652	1-164-159-11	CERAMIC	0.1uF		50V	
C653	1-164-159-11	CERAMIC	0.1uF		50V	
C654	1-124-252-00	ELECT	0.33uF	20%	50V	
C655	1-164-159-11	CERAMIC	0.1uF		50V	
C656	1-124-254-00	ELECT	0.68uF	20%	50V	
C657	1-162-282-31	CERAMIC	100PF	10%	50V	
C658	1-162-301-11	CERAMIC	0.0015uF	30%	16V	
C659	1-126-157-11	ELECT	10uF	20%	16V	
C670	1-161-494-00	CERAMIC	0.022uF		25V	
C671	1-162-303-11	CERAMIC	0.0033uF	30%	16V	
C672	1-164-159-11	CERAMIC	0.1uF		50V	
C673	1-164-159-11	CERAMIC	0.1uF		50V	
C674	1-124-252-00	ELECT	0.33uF	20%	50V	
C675	1-164-159-11	CERAMIC	0.1uF		50V	
C676	1-124-254-00	ELECT	0.68uF	20%	50V	
C677	1-162-282-31	CERAMIC	100PF	10%	50V	
C678	1-162-301-11	CERAMIC	0.0015uF	30%	16V	
C679	1-126-157-11	ELECT	10uF	20%	16V	
C680	1-126-163-11	ELECT	4.7uF	20%	50V	
C682	1-126-157-11	ELECT	10uF	20%	16V	
C683	1-126-157-11	ELECT	10uF	20%	16V	
C5001	1-164-159-11	CERAMIC	0.1uF		50V	
		< CONNECTOR >				
CN501	1-764-306-11	HOUSING, CONNECTOR (PC BOARD) 32P				
		< DIODE >				
D501	8-719-046-44	DIODE	SEL5221S (TAPE)			
D502	8-719-046-44	DIODE	SEL5221S (CD)			
D503	8-719-046-44	DIODE	SEL5221S (TUNER)			
D504	8-719-046-44	DIODE	SEL5221S (PHONO)			
D508	8-719-046-44	DIODE	SEL5221S (ON/STANDBY)			
D509	8-719-046-44	DIODE	SEL5221S (DBFB)			
D510	8-719-987-63	DIODE	1N4148M (IT)			
D511	8-719-987-63	DIODE	1N4148M (G)			
D513	8-719-987-63	DIODE	1N4148M (IT)			
D515	8-719-987-63	DIODE	1N4148M			
D530	8-719-987-63	DIODE	1N4148M			
D540	8-719-987-63	DIODE	1N4148M			
D542	8-719-987-63	DIODE	1N4148M			
D650	8-719-987-63	DIODE	1N4148M			
D660	8-719-987-63	DIODE	1N4148M			
D670	8-719-987-63	DIODE	1N4148M			
D5001	8-719-987-63	DIODE	1N4148M			

Ref. No.	Part No.	Description				Remark
		< FLUORESCENT INDICATOR >				
FL501	1-517-258-11	INDICATOR TUBE, FLUORESCENT				
		< IC >				
IC501	8-759-288-91	IC	uPD78042AGF012-3B9			
IC502	8-749-922-36	IC	GP1U50XB			
IC540	8-759-165-80	IC	PST600C-T			
IC541	8-759-165-84	IC	PST600G-T			
IC604	8-759-256-11	IC	M5243P12			
		< TRANSISTOR >				
Q501	8-729-422-57	TRANSISTOR	UN4111			
Q530	8-729-119-78	TRANSISTOR	2SC403SP-51			
Q601	8-729-900-80	TRANSISTOR	DTC114ES			
Q602	8-729-422-57	TRANSISTOR	UN4111			
Q603	8-729-422-57	TRANSISTOR	UN4111			
Q650	8-729-202-67	TRANSISTOR	2SK246-GR3			
Q660	8-729-119-78	TRANSISTOR	2SC403SP-51			
Q670	8-729-202-67	TRANSISTOR	2SK246-GR3			
Q680	8-729-119-78	TRANSISTOR	2SC2785-HFE			
		< RESISTOR >				
R501	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R502	1-247-807-31	CARBON	100	5%	1/4W	
R503	1-249-406-11	CARBON	120	5%	1/4W	F
R504	1-249-406-11	CARBON	120	5%	1/4W	F
R505	1-249-407-11	CARBON	150	5%	1/4W	F
R506	1-249-408-11	CARBON	180	5%	1/4W	F
R507	1-249-409-11	CARBON	220	5%	1/4W	F
R508	1-249-410-11	CARBON	270	5%	1/4W	F
R511	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R513	1-247-807-31	CARBON	100	5%	1/4W	
R514	1-249-406-11	CARBON	120	5%	1/4W	F
R515	1-249-406-11	CARBON	120	5%	1/4W	F
R516	1-249-407-11	CARBON	150	5%	1/4W	F
R520	1-249-409-11	CARBON	220	5%	1/4W	F
R525	1-249-411-11	CARBON	330	5%	1/4W	
R530	1-249-417-11	CARBON	1K	5%	1/4W	F
R532	1-249-429-11	CARBON	10K	5%	1/4W	
R533	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R534	1-249-429-11	CARBON	10K	5%	1/4W	
R535	1-249-433-11	CARBON	22K	5%	1/4W	
R536	1-249-433-11	CARBON	22K	5%	1/4W	
R539	1-249-441-11	CARBON	100K	5%	1/4W	
R540	1-249-441-11	CARBON	100K	5%	1/4W	
R541	1-249-441-11	CARBON	100K	5%	1/4W	
R542	1-249-441-11	CARBON	100K	5%	1/4W	
R543	1-249-441-11	CARBON	100K	5%	1/4W	
R544	1-249-441-11	CARBON	100K	5%	1/4W	
R545	1-249-441-11	CARBON	100K	5%	1/4W	

Ref. No.	Part
R546	1-24
R547	1-24
R548	1-24
R552	1-24
R553	1-24
R554	1-24
R555	1-24
R560	1-24
R561	1-24
R562	1-24
R563	1-24
R564	1-24
R565	1-24
R566	1-24
R567	1-24
R568	1-24
R569	1-24
R570	1-24
R571	1-24
R572	1-24
R573	1-24
R574	1-24
R575	1-24
R576	1-24
R577	1-24
R640	1-24
R641	1-24
R650	1-24
R651	1-24
R652	1-24
R653	1-24
R654	1-24
R655	1-24
R660	1-24
R661	1-24
R670	1-24
R671	1-24
R672	1-24
R673	1-24
R674	1-24
R675	1-24
R680	1-24
R681	1-24
R690	1-24
R691	1-24
R692	1-24
R694	1-24
R695	1-24

ample:
..., uPB...: μPB...,
PD...

Remark

(AEP, G)
****

(IT)
*****

20%	16V
30%	16V
20%	16V
30%	16V
30%	16V
	50V
	50V
	5.5V
	50V
20%	16V
	50V
	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V
10%	50V

Ref. No.	Part No.	Description				Remark
C583	1-162-286-31	CERAMIC	220PF	10%	50V	
C644	1-164-159-11	CERAMIC	0.1uF		50V	
C650	1-161-494-00	CERAMIC	0.022uF		25V	
C651	1-162-303-11	CERAMIC	0.0033uF	30%	16V	
C652	1-164-159-11	CERAMIC	0.1uF		50V	
C653	1-164-159-11	CERAMIC	0.1uF		50V	
C654	1-124-252-00	ELECT	0.33uF	20%	50V	
C655	1-164-159-11	CERAMIC	0.1uF		50V	
C656	1-124-254-00	ELECT	0.68uF	20%	50V	
C657	1-162-282-31	CERAMIC	100PF	10%	50V	
C658	1-162-301-11	CERAMIC	0.0015uF	30%	16V	
C659	1-126-157-11	ELECT	10uF	20%	16V	
C670	1-161-494-00	CERAMIC	0.022uF		25V	
C671	1-162-303-11	CERAMIC	0.0033uF	30%	16V	
C672	1-164-159-11	CERAMIC	0.1uF		50V	
C673	1-164-159-11	CERAMIC	0.1uF		50V	
C674	1-124-252-00	ELECT	0.33uF	20%	50V	
C675	1-164-159-11	CERAMIC	0.1uF		50V	
C676	1-124-254-00	ELECT	0.68uF	20%	50V	
C677	1-162-282-31	CERAMIC	100PF	10%	50V	
C678	1-162-301-11	CERAMIC	0.0015uF	30%	16V	
C679	1-126-157-11	ELECT	10uF	20%	16V	
C680	1-126-163-11	ELECT	4.7uF	20%	50V	
C682	1-126-157-11	ELECT	10uF	20%	16V	
C683	1-126-157-11	ELECT	10uF	20%	16V	
C5001	1-164-159-11	CERAMIC	0.1uF		50V	
		< CONNECTOR >				
CN501	1-764-306-11	HOUSING, CONNECTOR (PC BOARD) 32P				
		< DIODE >				
D501	8-719-046-44	DIODE SEL5221S (TAPE)				
D502	8-719-046-44	DIODE SEL5221S (CD)				
D503	8-719-046-44	DIODE SEL5221S (TUNER)				
D504	8-719-046-44	DIODE SEL5221S (PHONO)				
D508	8-719-046-44	DIODE SEL5221S (ON/STANDBY)				
D509	8-719-046-44	DIODE SEL5221S (DBFB)				
D510	8-719-987-63	DIODE 1N4148M (IT)				
D511	8-719-987-63	DIODE 1N4148M (G)				
D513	8-719-987-63	DIODE 1N4148M (IT)				
D515	8-719-987-63	DIODE 1N4148M				
D530	8-719-987-63	DIODE 1N4148M				
D540	8-719-987-63	DIODE 1N4148M				
D542	8-719-987-63	DIODE 1N4148M				
D650	8-719-987-63	DIODE 1N4148M				
D660	8-719-987-63	DIODE 1N4148M				
D670	8-719-987-63	DIODE 1N4148M				
D5001	8-719-987-63	DIODE 1N4148M				

Ref. No.	Part No.	Description				Remark
		< FLUORESCENT INDICATOR >				
FL501	1-517-258-11	INDICATOR TUBE, FLUORESCENT				
		< IC >				
IC501	8-759-288-91	IC uPD78042AGF012-3B9				
IC502	8-749-922-36	IC GP1U50XB				
IC540	8-759-165-80	IC PST600C-T				
IC541	8-759-165-84	IC PST600G-T				
IC604	8-759-256-11	IC M5243P12				
		< TRANSISTOR >				
Q501	8-729-422-57	TRANSISTOR UN4111				
Q530	8-729-119-78	TRANSISTOR 2SC403SP-51				
Q601	8-729-900-80	TRANSISTOR DTC114ES				
Q602	8-729-422-57	TRANSISTOR UN4111				
Q603	8-729-422-57	TRANSISTOR UN4111				
Q650	8-729-202-67	TRANSISTOR 2SK246-GR3				
Q660	8-729-119-78	TRANSISTOR 2SC403SP-51				
Q670	8-729-202-67	TRANSISTOR 2SK246-GR3				
Q680	8-729-119-78	TRANSISTOR 2SC2785-HFE				
		< RESISTOR >				
R501	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R502	1-247-807-31	CARBON	100	5%	1/4W	
R503	1-249-406-11	CARBON	120	5%	1/4W	F
R504	1-249-406-11	CARBON	120	5%	1/4W	F
R505	1-249-407-11	CARBON	150	5%	1/4W	F
R506	1-249-408-11	CARBON	180	5%	1/4W	F
R507	1-249-409-11	CARBON	220	5%	1/4W	F
R508	1-249-410-11	CARBON	270	5%	1/4W	F
R511	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R513	1-247-807-31	CARBON	100	5%	1/4W	
R514	1-249-406-11	CARBON	120	5%	1/4W	F
R515	1-249-406-11	CARBON	120	5%	1/4W	F
R516	1-249-407-11	CARBON	150	5%	1/4W	F
R520	1-249-409-11	CARBON	220	5%	1/4W	F
R525	1-249-411-11	CARBON	330	5%	1/4W	
R530	1-249-417-11	CARBON	1K	5%	1/4W	F
R532	1-249-429-11	CARBON	10K	5%	1/4W	
R533	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R534	1-249-429-11	CARBON	10K	5%	1/4W	
R535	1-249-433-11	CARBON	22K	5%	1/4W	
R536	1-249-433-11	CARBON	22K	5%	1/4W	
R539	1-249-441-11	CARBON	100K	5%	1/4W	
R540	1-249-441-11	CARBON	100K	5%	1/4W	
R541	1-249-441-11	CARBON	100K	5%	1/4W	
R542	1-249-441-11	CARBON	100K	5%	1/4W	
R543	1-249-441-11	CARBON	100K	5%	1/4W	
R544	1-249-441-11	CARBON	100K	5%	1/4W	
R545	1-249-441-11	CARBON	100K	5%	1/4W	
R546	1-249-429-11	CARBON	10K	5%	1/4W	
R547	1-249-429-11	CARBON	10K	5%	1/4W	
R548	1-249-429-11	CARBON	10K	5%	1/4W	
R552	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R553	1-249-417-11	CARBON	1K	5%	1/4W	F
R554	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R555	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R560	1-247-807-31	CARBON	100	5%	1/4W	
R561	1-247-807-31	CARBON	100	5%	1/4W	
R562	1-247-807-31	CARBON	100	5%	1/4W	
R563	1-247-807-31	CARBON	100	5%	1/4W	
R564	1-247-807-31	CARBON	100	5%	1/4W	
R565	1-247-807-31	CARBON	100	5%	1/4W	
R566	1-247-807-31	CARBON	100	5%	1/4W	
R567	1-247-807-31	CARBON	100	5%	1/4W	
R568	1-247-807-31	CARBON	100	5%	1/4W	
R569	1-247-807-31	CARBON	100	5%	1/4W	
R570	1-247-807-31	CARBON	100	5%	1/4W	
R571	1-247-807-31	CARBON	100	5%	1/4W	
R572	1-247-807-31	CARBON	100	5%	1/4W	
R573	1-247-807-31	CARBON	100	5%	1/4W	
R574	1-247-807-31	CARBON	100	5%	1/4W	
R575	1-247-807-31	CARBON	100	5%	1/4W	
R576	1-247-807-31	CARBON	100	5%	1/4W	
R577	1-247-807-31	CARBON	100	5%	1/4W	
R640	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R641	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R650	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R651	1-249-441-11	CARBON	100K	5%	1/4W	
R652	1-249-441-11	CARBON	100K	5%	1/4W	
R653	1-247-807-31	CARBON	100	5%	1/4W	
R654	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R655	1-247-903-00	CARBON	1M	5%	1/4W	
R660	1-249-417-11	CARBON	1K	5%	1/4W	F
R661	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R670	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R671	1-249-441-11	CARBON	100K	5%	1/4W	
R672	1-249-441-11	CARBON	100K	5%	1/4W	
R673	1-247-807-31	CARBON	100	5%	1/4W	
R674	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R675	1-247-903-00	CARBON	1M	5%	1/4W	
R680	1-249-417-11	CARBON	1K	5%	1/4W	F
R681	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R690	1-249-417-11	CARBON	1K	5%	1/4W	F
R691	1-249-429-11	CARBON	10K	5%	1/4W	
R692	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R694	1-247-891-00	CARBON	330K	5%	1/4W	
R695	1-249-421-11	CARBON	2.2K	5%	1/4W	F

Ref. No.	Part No.	Description	Remark
		< VARIABLE RESISTOR >	
RV601	1-223-296-11	RES, VAR, SLIDE 250K/250K (100Hz)	
RV602	1-223-296-11	RES, VAR, SLIDE 250K/250K (1kHz)	
RV603	1-223-296-11	RES, VAR, SLIDE 250K/250K (10kHz)	
		< SWITCH >	
S401	1-692-883-11	SWITCH, SLIDE (DOLBY)	
S501	1-571-760-11	SWITCH, KEY BOARD (SYSTEM POWER)	
S502	1-571-760-11	SWITCH, KEY BOARD (MEMORY)	
S503	1-571-760-11	SWITCH, KEY BOARD (MONO)	
S504	1-571-760-11	SWITCH, KEY BOARD (TAPE)	
S505	1-571-760-11	SWITCH, KEY BOARD (CD)	
S506	1-571-760-11	SWITCH, KEY BOARD (TUNER)	
S507	1-571-760-11	SWITCH, KEY BOARD (PHONO)	
S508	1-571-760-11	SWITCH, KEY BOARD (PRESET/TUNING)	
S511	1-571-760-11	SWITCH, KEY BOARD (BAND)	
S512	1-571-760-11	SWITCH, KEY BOARD (SHIFT)	
S513	1-571-760-11	SWITCH, KEY BOARD (-)	
S514	1-571-760-11	SWITCH, KEY BOARD (+)	
S515	1-571-760-11	SWITCH, KEY BOARD (DBFB)	
		< VIBRATOR >	
X501	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)	
**			
*	1-647-784-11	LEAF SW (A) BOARD *****************	
	4-352-844-01	PIN, LEAD, COATING	
		< CONNECTOR >	
* CN1001	1-568-943-11	PIN, CONNECTOR 5P	
		< SWITCH >	
S1001	1-571-736-11	SWITCH, LEAF (A MOTOR)	
S1002	1-571-736-11	SWITCH, LEAF (A PLAY)	
S1004	1-692-997-11	SWITCH, LEAF (A CrO2)	
**			
*	1-647-785-11	LEAF SW (B) BOARD *****************	
		< CONNECTOR >	
* CN2001	1-568-944-11	PIN, CONNECTOR 6P	
		< SWITCH >	
S2001	1-571-736-11	SWITCH, LEAF (B MOTOR)	
S2002	1-571-736-11	SWITCH, LEAF (B PLAY)	
S2003	1-571-736-11	SWITCH, LEAF (B REC)	

Ref.No.	Part No.	Description				Remark
S2004	1-692-997-11	SWITCH, LEAF (B Cr02)				

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Ref.No.	Part No.	Description				Remark
*	1-650-836-11	LOADING BOARD *************				
		< CONNECTOR >				
* CN291	1-568-943-11	PIN, CONNECTOR 5P				
		< SWITCH >				
S291	1-572-086-11	SWITCH, LEAF (LOAD OUT)				
S292	1-572-086-11	SWITCH, LEAF (LOAD IN)				

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Ref.No.	Part No.	Description				Remark
*	A-4378-582-A	MAIN BOARD, COMPLETE (AEP) **************************				
*	A-4378-583-A	MAIN BOARD, COMPLETE (G, IT) ***************************				
		< CAPACITOR >				
C1	1-162-195-31	CERAMIC	4.7PF	10%	50V	
C2	1-126-964-11	ELECT	10uF	20%	50V	
C3	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C5	1-164-159-11	CERAMIC	0.1uF		50V	
C6	1-164-159-11	CERAMIC	0.1uF		50V	(AEP)
C7	1-162-198-31	CERAMIC	8.2PF	10%	50V	
C8	1-164-159-11	CERAMIC	0.1uF		50V	(AEP)
C9	1-162-280-31	CERAMIC	82PF	10%	50V	(AEP)
C10	1-164-159-11	CERAMIC	0.1uF		50V	
C12	1-102-120-00	CERAMIC	0.0018uF	10%	50V	(AEP)
C13	1-162-301-11	CERAMIC	0.0015uF	30%	16V	(AEP)
C21	1-162-205-31	CERAMIC	18PF	5%	50V	
C22	1-162-205-31	CERAMIC	18PF	5%	50V	
C23	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C24	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C25	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C26	1-126-964-11	ELECT	10uF	20%	50V	
C27	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C28	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C29	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C30	1-126-964-11	ELECT	10uF	20%	50V	
C31	1-124-925-11	ELECT	2.2uF	20%	100V	
C32	1-136-153-00	FILM	0.01uF	5%	50V	
C33	1-124-463-00	ELECT	0.1uF	20%	50V	
C34	1-124-902-00	ELECT	0.47uF	20%	50V	(AEP)
C35	1-136-157-00	FILM	0.022uF	5%	50V	(AEP)
C36	1-136-157-00	FILM	0.022uF	5%	50V	(AEP)
C51	1-126-964-11	ELECT	10uF	20%	50V	
C52	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C53	1-162-282-31	CERAMIC	100PF	10%	50V	
C54	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C55	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C57	1-124-925-11	ELECT	2.2uF	20%	100V	
C58	1-124-903-11	ELECT	1uF	20%	50V	
C59	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C60	1-124-903-11	ELECT	1uF	20%	50V	
C61	1-137-438-11	FILM	0.0082uF	5%	50V	
C62	1-137-438-11	FILM	0.0082uF	5%	50V	
C63	1-124-903-11	ELECT	1uF	20%	50V	
C64	1-124-903-11	ELECT	1uF	20%	50V	
C68	1-162-600-11	CERAMIC	0.0047uF	30%	16V	
C69	1-162-600-11	CERAMIC	0.0047uF	30%	16V	
C73	1-124-903-11	ELECT	1uF	20%	50V	
C74	1-162-291-31	CERAMIC	560PF	10%	50V	
C75	1-162-600-11	CERAMIC	0.0047uF	30%	16V	
C76	1-126-964-11	ELECT	10uF	20%	50V	
C77	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C78	1-126-111-11	ELECT	3.3uF	20%	50V	
C79	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C80	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C81	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C82	1-162-207-31	CERAMIC	22PF	5%	50V	
C92	1-126-964-11	ELECT	10uF	20%	50V	
C94	1-164-159-11	CERAMIC	0.1uF		50V	
C201	1-136-153-00	FILM	0.01uF	5%	50V	
C202	1-164-159-11	CERAMIC	0.1uF		50V	
C203	1-137-434-11	FILM	0.0018uF	5%	50V	
C204	1-126-964-11	ELECT	10uF	20%	50V	
C205	1-136-155-00	FILM	0.015uF	5%	50V	
C206	1-137-364-11	FILM	0.001uF	5%	50V	
C207	1-126-947-11	ELECT	47uF	20%	35V	
C208	1-164-159-11	CERAMIC	0.1uF		50V	
C209	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C251	1-136-153-00	FILM	0.01uF	5%	50V	
C252	1-164-159-11	CERAMIC	0.1uF		50V	
C253	1-137-434-11	FILM	0.0018uF	5%	50V	
C254	1-126-964-11	ELECT	10uF	20%	50V	
C255	1-136-155-00	FILM	0.015uF	5%	50V	
C256	1-137-364-11	FILM	0.001uF	5%	50V	
C257	1-126-947-11	ELECT	47uF	20%	35V	
C258	1-164-159-11	CERAMIC	0.1uF		50V	
C259	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C260	1-162-290-31	CERAMIC	470PF	10%	50V	
C261	1-164-159-11	CERAMIC	0.1uF		50V	
C278	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C279	1-161-494-00	CERAMIC	0.022uF		25V	
C282	1-164-159-11	CERAMIC	0.1uF		50V	
C283	1-126-964-11	ELECT	10uF	20%	50V	
C284	1-164-159-11	CERAMIC	0.1uF		50V	

MAIN

Ref.No.	Part No.	Description				Remark
C285	1-164-159-11	CERAMIC	0.1uF		50V	
C291	1-124-927-11	ELECT	4.7uF	20%	100V	
C292	1-124-927-11	ELECT	4.7uF	20%	100V	
C293	1-126-926-11	ELECT	1000uF	20%	10V	
C294	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C295	1-126-964-11	ELECT	10uF	20%	50V	
C296	1-126-925-11	ELECT	470uF	20%	10V	
C297	1-126-933-11	ELECT	100uF	20%	16V	
C299	1-126-947-11	ELECT	47uF	20%	35V	
C301	1-162-293-31	CERAMIC	820PF	10%	50V	
C302	1-136-157-00	FILM	0.022uF	5%	50V	
C303	1-126-964-11	ELECT	10uF	20%	50V	
C304	1-162-282-31	CERAMIC	100PF	10%	50V	
C311	1-162-293-31	CERAMIC	820PF	10%	50V	
C312	1-136-157-00	FILM	0.022uF	5%	50V	
C313	1-126-964-11	ELECT	10uF	20%	50V	
C314	1-162-282-31	CERAMIC	100PF	10%	50V	
C315	1-126-933-11	ELECT	100uF	20%	16V	
C321	1-137-368-11	FILM	0.0047uF	5%	50V	
C322	1-124-903-11	ELECT	1uF	20%	50V	
C323	1-124-927-11	ELECT	4.7uF	20%	100V	
C324	1-164-159-11	CERAMIC	0.1uF		50V	
C325	1-126-964-11	ELECT	10uF	20%	50V	
C326	1-124-903-11	ELECT	1uF	20%	50V	
C327	1-124-902-00	ELECT	0.47uF	20%	50V	
C328	1-124-927-11	ELECT	4.7uF	20%	100V	
C329	1-162-291-31	CERAMIC	560PF	10%	50V	
C330	1-162-301-11	CERAMIC	0.0015uF	30%	16V	
C331	1-162-209-31	CERAMIC	27PF	5%	50V	
C332	1-162-279-31	CERAMIC	75PF	10%	50V	
C333	1-162-288-31	CERAMIC	330PF	10%	50V	
C334	1-162-283-31	CERAMIC	120PF	10%	50V	
C335	1-162-286-31	CERAMIC	220PF	10%	50V	
C351	1-126-947-11	ELECT	47uF	20%	35V	
C352	1-161-494-00	CERAMIC	0.022uF		25V	
C401	1-162-293-31	CERAMIC	820PF	10%	50V	
C402	1-136-157-00	FILM	0.022uF	5%	50V	
C403	1-126-964-11	ELECT	10uF	20%	50V	
C404	1-162-282-31	CERAMIC	100PF	10%	50V	
C411	1-162-293-31	CERAMIC	820PF	10%	50V	
C412	1-136-157-00	FILM	0.022uF	5%	50V	
C413	1-126-964-11	ELECT	10uF	20%	50V	
C414	1-162-282-31	CERAMIC	100PF	10%	50V	
C415	1-126-933-11	ELECT	100uF	20%	16V	
C421	1-137-368-11	FILM	0.0047uF	5%	50V	
C422	1-124-903-11	ELECT	1uF	20%	50V	
C423	1-124-927-11	ELECT	4.7uF	20%	100V	
C424	1-164-159-11	CERAMIC	0.1uF		50V	
C425	1-126-964-11	ELECT	10uF	20%	50V	
C426	1-124-903-11	ELECT	1uF	20%	50V	

Ref.No.	Part No.	Description				Remark
C427	1-124-902-00	ELECT	0.47uF	20%	50V	
C428	1-124-927-11	ELECT	4.7uF	20%	100V	
C429	1-162-291-31	CERAMIC	560PF	10%	50V	
C430	1-162-301-11	CERAMIC	0.0015uF	30%	16V	
C431	1-162-209-31	CERAMIC	27PF	5%	50V	
C432	1-162-279-31	CERAMIC	75PF	10%	50V	
C433	1-162-288-31	CERAMIC	330PF	10%	50V	
C434	1-162-283-31	CERAMIC	120PF	10%	50V	
C435	1-162-286-31	CERAMIC	220PF	10%	50V	
C436	1-162-286-31	CERAMIC	220PF	10%	50V	
C455	1-126-933-11	ELECT	100uF	20%	16V	
C456	1-126-933-11	ELECT	100uF	20%	16V	
C459	1-126-964-11	ELECT	10uF	20%	50V	
C460	1-126-964-11	ELECT	10uF	20%	50V	
C461	1-126-768-11	ELECT	2200uF	20%	16V	
C464	1-126-933-11	ELECT	100uF	20%	16V	
C465	1-126-933-11	ELECT	100uF	20%	16V	
C470	1-164-159-11	CERAMIC	0.1uF		50V	
C471	1-124-925-11	ELECT	2.2uF	20%	100V	
C472	1-136-562-11	FILM	0.0082uF	5%	630V	(AEP)
C472	1-136-601-11	FILM	0.01uF	5%	630V	(G, IT)
C473	1-124-925-11	ELECT	2.2uF	20%	100V	
C474	1-136-153-00	FILM	0.01uF	5%	50V	
C475	1-162-305-11	CERAMIC	0.0068uF	30%	16V	
C476	1-137-436-11	FILM	0.0039uF	5%	50V	
C477	1-137-436-11	FILM	0.0039uF	5%	50V	
C478	1-164-159-11	CERAMIC	0.1uF		50V	
C479	1-126-934-11	ELECT	220uF	20%	16V	
C480	1-124-927-11	ELECT	4.7uF	20%	100V	
C481	1-136-555-11	FILM	0.0022uF	5%	630V	(AEP)
C482	1-136-555-11	FILM	0.0022uF	5%	630V	(AEP)
C491	1-124-927-11	ELECT	4.7uF	20%	100V	
C492	1-124-903-11	ELECT	1uF	20%	50V	
C493	1-124-927-11	ELECT	4.7uF	20%	100V	
C494	1-124-903-11	ELECT	1uF	20%	50V	
C495	1-126-964-11	ELECT	10uF	20%	50V	
C496	1-124-925-11	ELECT	2.2uF	20%	100V	
C622	1-162-282-31	CERAMIC	100PF	10%	50V	
C623	1-162-215-31	CERAMIC	47PF	5%	50V	
C624	1-164-159-11	CERAMIC	0.1uF		50V	
C632	1-162-282-31	CERAMIC	100PF	10%	50V	
C633	1-162-215-31	CERAMIC	47PF	5%	50V	
C634	1-164-159-11	CERAMIC	0.1uF		50V	
C642	1-126-964-11	ELECT	10uF	20%	50V	
C643	1-126-964-11	ELECT	10uF	20%	50V	
C730	1-164-159-11	CERAMIC	0.1uF		50V	
C734	1-164-159-11	CERAMIC	0.1uF		50V	
C735	1-164-159-11	CERAMIC	0.1uF		50V	
C750	1-162-282-31	CERAMIC	100PF	10%	50V	
C751	1-162-282-31	CERAMIC	100PF	10%	50V	

Ref. No.	Part No.	Description	Remark
C752	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C753	1-124-927-11	ELECT 4.7uF 20% 100V	
C754	1-137-437-11	FILM 0.0056uF 5% 50V	
C755	1-137-365-11	FILM 0.0015uF 5% 50V	
C756	1-164-159-11	CERAMIC 0.1uF 50V	
C757	1-124-925-11	ELECT 2.2uF 20% 100V	
C759	1-164-159-11	CERAMIC 0.1uF 50V	
C766	1-164-159-11	CERAMIC 0.1uF 50V	
C770	1-162-282-31	CERAMIC 100PF 10% 50V	
C771	1-162-282-31	CERAMIC 100PF 10% 50V	
C772	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C773	1-124-927-11	ELECT 4.7uF 20% 100V	
C774	1-137-437-11	FILM 0.0056uF 5% 50V	
C775	1-137-365-11	FILM 0.0015uF 5% 50V	
C777	1-124-925-11	ELECT 2.2uF 20% 100V	
C779	1-164-159-11	CERAMIC 0.1uF 50V	
C797	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C999	1-162-211-31	CERAMIC 33PF 5% 50V	
C1001	1-162-205-31	CERAMIC 18PF 5% 50V	
C1008	1-162-282-31	CERAMIC 100PF 10% 50V	
C1009	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C2002	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C2004	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C2005	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C2006	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C2007	1-164-159-11	CERAMIC 0.1uF 50V	
C2008	1-124-903-11	ELECT 1uF 20% 50V	
C4001	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C4002	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C4003	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C4004	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C6001	1-162-282-31	CERAMIC 100PF 10% 50V	
C8001	1-162-282-31	CERAMIC 100PF 10% 50V	
C8002	1-124-122-11	ELECT 100uF 20% 50V	
C8003	1-124-122-11	ELECT 100uF 20% 50V	
C8051	1-162-282-31	CERAMIC 100PF 10% 50V	

< FILTER >

Ref. No.	Part No.	Description	Remark
CF1	1-567-389-11	FILTER, CERAMIC	
CF2	1-567-389-11	FILTER, CERAMIC	
CF51	1-567-389-11	FILTER, CERAMIC	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN201	1-568-839-11	SOCKET, CONNECTOR 23P	
* CN202	1-568-954-11	PIN, CONNECTOR 5P	
* CN251	1-569-779-11	PLUG, CONNECTOR 7P	
* CN301	1-564-507-11	PLUG, CONNECTOR 4P	
* CN302	1-564-509-11	PLUG, CONNECTOR 6P	
CN303	1-564-505-11	PLUG, CONNECTOR 2P	
* CN304	1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P	
* CN411	1-568-449-11	HOUSING, CONNECTOR(PC BOARD)3P	
* CN412	1-568-449-11	HOUSING, CONNECTOR(PC BOARD)3P	
CN601	1-764-294-11	PIN, CONNECTOR (PC BOARD) 32P	
CN602	1-695-693-11	CONNECTOR, FFC(LIF(NON-ZIF))9P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D21	8-719-933-33	DIODE HZS6A1L	
D51	8-719-987-63	DIODE 1N4148M	
D201	8-719-024-99	DIODE 11ES2-NTA2B	
D221	8-719-987-63	DIODE 1N4148M	
D252	8-719-010-33	DIODE UZ-4.7BSB	
D403	8-719-987-63	DIODE 1N4148M	
D404	8-719-987-63	DIODE 1N4148M	
D405	8-719-987-63	DIODE 1N4148M	
D407	8-719-987-63	DIODE 1N4148M	
D408	8-719-987-63	DIODE 1N4148M	
D409	8-719-987-63	DIODE 1N4148M	
D451	8-719-933-33	DIODE HZS6A1L	

< FERRITE BEAD >

Ref. No.	Part No.	Description	Remark
* FB801	1-410-858-21	INDUCTOR 0UH	
* FB851	1-410-858-21	INDUCTOR 0UH	

< FRONTEND >

Ref. No.	Part No.	Description	Remark
FE1	1-693-217-11	FRONT END (4 GANG)	
FE2	1-239-260-11	ENCAPSULATED COMPONENT (G, IT)	
FE2	1-239-261-12	ENCAPSULATED COMPONENT (AEP)	
FE3	1-239-846-11	ENCAPSULATED COMPONENT (AEP)	

< IC >

Ref. No.	Part No.	Description	Remark
IC21	8-759-175-87	IC LC7218-ST	
IC51	8-759-090-40	IC LA1831	
IC201	8-759-634-51	IC M5218AP	
IC202	8-759-634-51	IC M5218AP	
IC203	8-759-096-75	IC TDA1545AP	
IC251	8-759-821-93	IC LA5601	
IC252	8-759-165-80	IC PST600C-T	
IC255	8-759-822-09	IC LB1641	
IC303	8-759-098-73	IC HA12172NT	
IC304	8-759-261-93	IC NJM4580LD	
IC305	8-759-261-93	IC NJM4580LD	
IC306	8-759-143-54	IC uPC1330HA	
IC351	8-759-284-08	IC TMP87CH46N-4106	
IC407	8-759-240-81	IC TC4081BP	
IC602	8-759-634-50	IC M5218AL	
IC730	8-759-820-62	IC LB1639	
IC750	8-759-634-50	IC M5218AL	
IC751	8-759-000-48	IC MC14052BCP	

MAIN

Ref. No.	Part No.	Description	Remark
		< IFT >	
IFT51	1-404-713-11	TRANSFORMER, IF	
		< JACK >	
J730	1-750-032-11	JACK (DIA. 3.5)(HEADPHONES)	
J750	1-764-767-11	JACK, PIN 2P (PHONO)	
		< COIL >	
L1	1-408-425-00	INDUCTOR 220uH (AEP)	
L21	1-410-482-31	INDUCTOR 100uH	
L51	1-410-496-11	INDUCTOR 1.5mH	
L201	1-410-521-11	INDUCTOR 100uH	
L202	1-410-521-11	INDUCTOR 100uH	
L301	1-410-780-11	INDUCTOR 27mH	
L401	1-410-780-11	INDUCTOR 27mH	
L451	1-408-429-00	INDUCTOR 470uH	
L999	1-408-397-00	INDUCTOR 1uH	
L1001	1-410-521-11	INDUCTOR 100uH	
L1002	1-410-521-11	INDUCTOR 100uH	
		< FILTER >	
LPF51	1-239-845-11	FILTER, LOW PASS	
LPF52	1-239-845-11	FILTER, LOW PASS	
		< TRANSISTOR >	
Q1	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q2	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q3	8-729-422-57	TRANSISTOR UN4111	
Q4	8-729-119-76	TRANSISTOR 2SA1175-HFE (AEP)	
Q5	8-729-119-76	TRANSISTOR 2SA1175-HFE (AEP)	
Q6	8-729-900-80	TRANSISTOR DTC114ES (AEP)	
Q7	8-729-900-80	TRANSISTOR DTC114ES (AEP)	
Q8	8-729-900-80	TRANSISTOR DTC114ES (AEP)	
Q9	8-729-119-78	TRANSISTOR 2SC2785-HFE (AEP)	
Q21	8-729-202-67	TRANSISTOR 2SK246-GR3	
Q22	8-729-201-84	TRANSISTOR 2SC3112-B	
Q23	8-729-202-67	TRANSISTOR 2SK246-GR3 (AEP)	
Q24	8-729-201-84	TRANSISTOR 2SC3112-B (AEP)	
Q53	8-729-900-80	TRANSISTOR DTC114ES	
Q201	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q202	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q203	8-729-900-80	TRANSISTOR DTC114ES	
Q204	8-729-422-57	TRANSISTOR UN4111	
Q205	8-729-422-57	TRANSISTOR UN4111	
Q221	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q251	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q252	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q291	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q301	8-729-141-26	TRANSISTOR 2SC3622A-LK	

Ref. No.	Part No.	Description	Remark
Q401	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q407	8-729-900-89	TRANSISTOR DTC144ES	
Q408	8-729-900-89	TRANSISTOR DTC144ES	
Q409	8-729-900-89	TRANSISTOR DTC144ES	
Q410	8-729-900-65	TRANSISTOR DTA144ES	
Q411	8-729-900-89	TRANSISTOR DTC144ES	
Q412	8-729-900-89	TRANSISTOR DTC144ES	
Q451	8-729-194-57	TRANSISTOR 2SC945-P	
Q452	8-729-194-57	TRANSISTOR 2SC945-P	
Q453	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q454	8-729-119-78	TRANSISTOR 2SC2785-HFE	
		< RESISTOR >	
R1	1-249-411-11	CARBON 330 5% 1/4W	
R2	1-249-411-11	CARBON 330 5% 1/4W	
R3	1-247-891-00	CARBON 330K 5% 1/4W	
R4	1-249-411-11	CARBON 330 5% 1/4W	
R5	1-247-891-00	CARBON 330K 5% 1/4W	
R6	1-249-411-11	CARBON 330 5% 1/4W	
R7	1-249-406-11	CARBON 120 5% 1/4W F	
R8	1-249-429-11	CARBON 10K 5% 1/4W	(AEP)
R9	1-249-429-11	CARBON 10K 5% 1/4W	(AEP)
R10	1-249-437-11	CARBON 47K 5% 1/4W	
R11	1-249-429-11	CARBON 10K 5% 1/4W	
R12	1-249-425-11	CARBON 4.7K 5% 1/4W F	(AEP)
R13	1-249-437-11	CARBON 47K 5% 1/4W	(AEP)
R14	1-249-429-11	CARBON 10K 5% 1/4W	(AEP)
R15	1-247-807-31	CARBON 100 5% 1/4W	
R17	1-247-903-00	CARBON 1M 5% 1/4W	(AEP)
R18	1-249-429-11	CARBON 10K 5% 1/4W	(AEP)
R19	1-249-429-11	CARBON 10K 5% 1/4W	(AEP)
R21	1-249-417-11	CARBON 1K 5% 1/4W F	
R22	1-249-417-11	CARBON 1K 5% 1/4W F	
R23	1-249-417-11	CARBON 1K 5% 1/4W F	
R24	1-247-807-31	CARBON 100 5% 1/4W	
R25	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R26	1-249-417-11	CARBON 1K 5% 1/4W F	
R27	1-249-409-11	CARBON 220 5% 1/4W F	
R28	1-247-807-31	CARBON 100 5% 1/4W	
R30	1-249-423-11	CARBON 3.3K 5% 1/4W F	
R31	1-249-414-11	CARBON 560 5% 1/4W F	
R32	1-249-417-11	CARBON 1K 5% 1/4W F	
R33	1-249-410-11	CARBON 270 5% 1/4W F	
R34	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R35	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R36	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R37	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R38	1-247-807-31	CARBON 100 5% 1/4W	
R39	1-249-423-11	CARBON 3.3K 5% 1/4W F	(AEP)
R40	1-249-414-11	CARBON 560 5% 1/4W F	(AEP)

Ref. No.	Part No.	Description				Remark
R41	1-249-417-11	CARBON	1K	5%	1/4W	F (AEP)
R42	1-249-410-11	CARBON	270	5%	1/4W	F (AEP)
R43	1-249-433-11	CARBON	22K	5%	1/4W	(AEP)
R44	1-249-421-11	CARBON	2.2K	5%	1/4W	F (AEP)
R45	1-249-425-11	CARBON	4.7K	5%	1/4W	F (AEP)
R46	1-249-425-11	CARBON	4.7K	5%	1/4W	F (AEP)
R47	1-249-417-11	CARBON	1K	5%	1/4W	F (AEP)
R52	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R53	1-247-822-11	CARBON	430	5%	1/4W	
R54	1-247-870-11	CARBON	43K	5%	1/4W	
R55	1-249-429-11	CARBON	10K	5%	1/4W	
R56	1-247-842-11	CARBON	3K	5%	1/4W	
R57	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R58	1-249-437-11	CARBON	47K	5%	1/4W	
R61	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R62	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R65	1-249-429-11	CARBON	10K	5%	1/4W	
R66	1-249-429-11	CARBON	10K	5%	1/4W	
R67	1-249-437-11	CARBON	47K	5%	1/4W	
R69	1-249-399-11	CARBON	33	5%	1/4W	F
R70	1-249-413-11	CARBON	470	5%	1/4W	F
R91	1-247-807-31	CARBON	100	5%	1/4W	
R201	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R202	1-249-411-11	CARBON	330	5%	1/4W	
R203	1-249-416-11	CARBON	820	5%	1/4W	F
R204	1-247-842-11	CARBON	3K	5%	1/4W	
R205	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R206	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R207	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R208	1-247-838-00	CARBON	2K	5%	1/4W	
R209	1-249-417-11	CARBON	1K	5%	1/4W	F
R210	1-249-441-11	CARBON	100K	5%	1/4W	
R211	1-249-417-11	CARBON	1K	5%	1/4W	F
R212	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R215	1-249-411-11	CARBON	330	5%	1/4W	
R220	1-249-437-11	CARBON	47K	5%	1/4W	
R221	1-249-429-11	CARBON	10K	5%	1/4W	
R223	1-249-429-11	CARBON	10K	5%	1/4W	
R224	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R225	1-249-417-11	CARBON	1K	5%	1/4W	F
R226	1-249-417-11	CARBON	1K	5%	1/4W	F
R227	1-249-417-11	CARBON	1K	5%	1/4W	F
R228	1-249-417-11	CARBON	1K	5%	1/4W	F
R229	1-249-413-11	CARBON	470	5%	1/4W	F
R230	1-249-413-11	CARBON	470	5%	1/4W	F
R231	1-249-417-11	CARBON	1K	5%	1/4W	F
R232	1-247-807-31	CARBON	100	5%	1/4W	
R233	1-249-413-11	CARBON	470	5%	1/4W	F
R234	1-249-413-11	CARBON	470	5%	1/4W	F
R235	1-249-413-11	CARBON	470	5%	1/4W	F
R236	1-249-413-11	CARBON	470	5%	1/4W	F
R237	1-249-437-11	CARBON	47K	5%	1/4W	
R251	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R252	1-249-411-11	CARBON	330	5%	1/4W	
R253	1-249-416-11	CARBON	820	5%	1/4W	F
R254	1-247-842-11	CARBON	3K	5%	1/4W	
R255	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R256	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R257	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R258	1-247-838-00	CARBON	2K	5%	1/4W	
R259	1-249-417-11	CARBON	1K	5%	1/4W	F
R260	1-249-441-11	CARBON	100K	5%	1/4W	
R261	1-249-417-11	CARBON	1K	5%	1/4W	F
R262	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R265	1-249-411-11	CARBON	330	5%	1/4W	
R280	1-249-429-11	CARBON	10K	5%	1/4W	
R281	1-249-431-11	CARBON	15K	5%	1/4W	
R282	1-249-434-11	CARBON	27K	5%	1/4W	
R283	1-249-434-11	CARBON	27K	5%	1/4W	
R291	1-249-437-11	CARBON	47K	5%	1/4W	
R292	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R293	1-249-417-11	CARBON	1K	5%	1/4W	F
⚠R299	1-212-950-00	FUSIBLE	4.7	5%	1/2W	F
R301	1-247-889-00	CARBON	270K	5%	1/4W	
R302	1-249-404-00	CARBON	82	5%	1/4W	F
R303	1-247-882-11	CARBON	130K	5%	1/4W	
R304	1-247-850-11	CARBON	6.2K	5%	1/4W	
R311	1-247-889-00	CARBON	270K	5%	1/4W	
R312	1-249-404-00	CARBON	82	5%	1/4W	F
R313	1-247-882-11	CARBON	130K	5%	1/4W	
R314	1-247-850-11	CARBON	6.2K	5%	1/4W	
R316	1-249-433-11	CARBON	22K	5%	1/4W	
R321	1-249-429-11	CARBON	10K	5%	1/4W	
R322	1-249-431-11	CARBON	15K	5%	1/4W	
R323	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R324	1-249-417-11	CARBON	1K	5%	1/4W	F
R325	1-249-414-11	CARBON	560	5%	1/4W	F
R326	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R327	1-249-433-11	CARBON	22K	5%	1/4W	
R328	1-249-417-11	CARBON	1K	5%	1/4W	F
R331	1-249-430-11	CARBON	12K	5%	1/4W	
R350	1-249-431-11	CARBON	15K	5%	1/4W	
R351	1-249-431-11	CARBON	15K	5%	1/4W	
R355	1-249-431-11	CARBON	15K	5%	1/4W	
R366	1-249-429-11	CARBON	10K	5%	1/4W	
R367	1-249-429-11	CARBON	10K	5%	1/4W	
R368	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R369	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R370	1-249-429-11	CARBON	10K	5%	1/4W	
R401	1-247-889-00	CARBON	270K	5%	1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MAIN

Ref. No.	Part No.	Description				Remark
R402	1-249-404-00	CARBON	82	5%	1/4W	F
R403	1-247-882-11	CARBON	130K	5%	1/4W	
R404	1-247-850-11	CARBON	6.2K	5%	1/4W	
R411	1-247-889-00	CARBON	270K	5%	1/4W	
R412	1-249-404-00	CARBON	82	5%	1/4W	F
R413	1-247-882-11	CARBON	130K	5%	1/4W	
R414	1-247-850-11	CARBON	6.2K	5%	1/4W	
R416	1-249-433-11	CARBON	22K	5%	1/4W	
R421	1-249-429-11	CARBON	10K	5%	1/4W	
R422	1-249-431-11	CARBON	15K	5%	1/4W	
R423	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R424	1-249-417-11	CARBON	1K	5%	1/4W	F
R425	1-249-414-11	CARBON	560	5%	1/4W	F
R426	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R427	1-249-433-11	CARBON	22K	5%	1/4W	
R428	1-249-417-11	CARBON	1K	5%	1/4W	F
R431	1-249-430-11	CARBON	12K	5%	1/4W	
R441	1-249-433-11	CARBON	22K	5%	1/4W	
R442	1-247-807-31	CARBON	100	5%	1/4W	
R443	1-249-433-11	CARBON	22K	5%	1/4W	
R444	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R445	1-249-437-11	CARBON	47K	5%	1/4W	
R446	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R447	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R448	1-249-433-11	CARBON	22K	5%	1/4W	
R449	1-249-438-11	CARBON	56K	5%	1/4W	
R450	1-249-437-11	CARBON	47K	5%	1/4W	
R451	1-249-389-11	CARBON	4.7	5%	1/4W	F
R452	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R453	1-249-409-11	CARBON	220	5%	1/4W	F
R454	1-249-409-11	CARBON	220	5%	1/4W	F
R461	1-249-432-11	CARBON	18K	5%	1/4W	
R462	1-247-876-11	CARBON	75K	5%	1/4W	
R463	1-249-432-11	CARBON	18K	5%	1/4W	
R464	1-249-437-11	CARBON	47K	5%	1/4W	
R465	1-249-437-11	CARBON	47K	5%	1/4W	
R466	1-249-437-11	CARBON	47K	5%	1/4W	
R467	1-247-864-11	CARBON	24K	5%	1/4W	
R468	1-249-433-11	CARBON	22K	5%	1/4W	
R469	1-249-433-11	CARBON	22K	5%	1/4W	
R470	1-249-433-11	CARBON	22K	5%	1/4W	
R471	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R472	1-249-429-11	CARBON	10K	5%	1/4W	
R473	1-249-434-11	CARBON	27K	5%	1/4W	
R474	1-249-434-11	CARBON	27K	5%	1/4W	
R476	1-247-856-00	CARBON	11K	5%	1/4W	(G, IT)
R476	1-249-430-11	CARBON	12K	5%	1/4W	(AEP)
R479	1-249-433-11	CARBON	22K	5%	1/4W	
R481	1-215-905-11	METAL OXIDE	10	5%	3W	F
R482	1-249-427-11	CARBON	6.8K	5%	1/4W	F

Ref. No.	Part No.	Description				Remark
R483	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R484	1-249-441-11	CARBON	100K	5%	1/4W	(AEP)
R485	1-249-437-11	CARBON	47K	5%	1/4W	(AEP)
R493	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R495	1-247-883-00	CARBON	150K	5%	1/4W	
R496	1-247-887-00	CARBON	220K	5%	1/4W	
R621	1-249-437-11	CARBON	47K	5%	1/4W	
R623	1-249-437-11	CARBON	47K	5%	1/4W	
R631	1-249-437-11	CARBON	47K	5%	1/4W	
R633	1-249-437-11	CARBON	47K	5%	1/4W	
R730	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R731	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R732	1-249-412-11	CARBON	390	5%	1/4W	F
R733	1-249-412-11	CARBON	390	5%	1/4W	F
R734	1-249-389-11	CARBON	4.7	5%	1/4W	F
R735	1-249-389-11	CARBON	4.7	5%	1/4W	F
R750	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R751	1-249-437-11	CARBON	47K	5%	1/4W	
R752	1-249-415-11	CARBON	680	5%	1/4W	F
R753	1-247-897-11	CARBON	560K	5%	1/4W	
R754	1-249-437-11	CARBON	47K	5%	1/4W	
R770	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R771	1-249-437-11	CARBON	47K	5%	1/4W	
R772	1-249-415-11	CARBON	680	5%	1/4W	F
R773	1-247-897-11	CARBON	560K	5%	1/4W	
R774	1-249-437-11	CARBON	47K	5%	1/4W	
R780	1-249-429-11	CARBON	10K	5%	1/4W	
R781	1-249-429-11	CARBON	10K	5%	1/4W	
R1001	1-247-807-31	CARBON	100	5%	1/4W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description
RV51	1-238-019-11	RES, ADJ, CARBON 47K
RV301	1-241-630-11	RES, ADJ, CARBON 10K
RV303	1-241-630-11	RES, ADJ, CARBON 10K
RV304	1-241-767-21	RES, ADJ, CARBON 100K
RV311	1-241-630-11	RES, ADJ, CARBON 10K
RV401	1-241-630-11	RES, ADJ, CARBON 10K
RV403	1-241-630-11	RES, ADJ, CARBON 10K
RV404	1-241-767-21	RES, ADJ, CARBON 100K
RV411	1-241-630-11	RES, ADJ, CARBON 10K
RV451	1-241-762-11	RES, ADJ, CARBON 2.2K
RV730	1-223-652-12	RES, VAR, CARBON 100K/100K (VOLUME)

< SWITCH >

Ref. No.	Part No.	Description
S301	1-572-185-11	SWITCH, SLIDE (ISS)(AEP)

< TRANSFORMER >

Ref. No.	Part No.	Description
T51	1-236-465-11	ENCAPSULATED COMPONENT
T401	1-433-349-11	TRANSFORMER, BIAS OSCILLATION

Ref. No.	Part No.	Description			Remark
		< TERMINAL >			
TB1	1-537-488-11	TERMINAL BOARD (ANT)			
* TB2	4-925-530-01	PLATE, GROUND (ANTENNA)			
TM730	1-537-238-11	TERMINAL BOARD (SPEAKER)			
		< VIBRATOR >			
X21	1-579-585-11	VIBRATOR, CRYSTAL (7.2MHz)			
X51	1-579-777-11	DISCRIMINATOR, CERAMIC (10.7MHz)			
X52	1-577-075-11	OSCILLATOR, CERAMIC (456kHz)			
X351	1-579-125-11	VIBRATOR, CERAMIC (8MHz)			
**					
*	A-4371-543-A	POWER BOARD, COMPLETE (G, IT) *****************************			
*	A-4378-676-A	POWER BOARD, COMPLETE (AEP) ***************************			
		< CAPACITOR >			
C802	1-124-925-11	ELECT	2.2uF	20%	100V
C803	1-162-282-31	CERAMIC	100PF	10%	50V
C804	1-128-551-11	ELECT	22uF	20%	50V
C805	1-126-964-11	ELECT	10uF	20%	50V
C807	1-164-159-11	CERAMIC	0.1uF		50V
C808	1-164-159-11	CERAMIC	0.1uF		50V
C809	1-162-282-31	CERAMIC	100PF	10%	50V
C810	1-126-964-11	ELECT	10uF	20%	50V
C811	1-126-933-11	ELECT	100uF	20%	16V
C812	1-126-933-11	ELECT	100uF	20%	16V
C852	1-124-925-11	ELECT	2.2uF	20%	100V
C853	1-162-282-31	CERAMIC	100PF	10%	50V
C854	1-128-551-11	ELECT	22uF	20%	50V
C855	1-126-964-11	ELECT	10uF	20%	50V
C857	1-164-159-11	CERAMIC	0.1uF		50V
C858	1-164-159-11	CERAMIC	0.1uF		50V
C859	1-162-282-31	CERAMIC	100PF	10%	50V
C860	1-126-964-11	ELECT	10uF	20%	50V
C901	1-126-954-11	ELECT	3300uF	20%	35V
C902	1-126-953-11	ELECT	2200uF	20%	35V
C903	1-164-159-11	CERAMIC	0.1uF		50V
C904	1-164-159-11	CERAMIC	0.1uF		50V
C905	1-164-159-11	CERAMIC	0.1uF		50V
C910	1-126-964-11	ELECT	10uF	20%	50V
C911	1-126-964-11	ELECT	10uF	20%	50V
C912	1-124-927-11	ELECT	4.7uF	20%	100V
C913	1-124-927-11	ELECT	4.7uF	20%	100V
C914	1-124-903-11	ELECT	1uF	20%	50V
C915	1-124-927-11	ELECT	4.7uF	20%	100V
C916	1-124-927-11	ELECT	4.7uF	20%	100V
C917	1-162-306-11	CERAMIC	0.01uF	30%	16V
C918	1-126-964-11	ELECT	10uF	20%	50V
C919	1-162-306-11	CERAMIC	0.01uF	30%	16V
C920	1-126-964-11	ELECT	10uF	20%	50V
C921	1-126-969-11	ELECT	220uF	20%	50V
C922	1-164-159-11	CERAMIC	0.1uF		50V
C923	1-164-159-11	CERAMIC	0.1uF		50V
C924	1-126-964-11	ELECT	10uF	20%	50V
C925	1-126-964-11	ELECT	10uF	20%	50V
C926	1-126-964-11	ELECT	10uF	20%	50V
C9001	1-162-306-11	CERAMIC	0.01uF	30%	16V
C9002	1-162-306-11	CERAMIC	0.01uF	30%	16V
C9003	1-162-306-11	CERAMIC	0.01uF	30%	16V
		< CONNECTOR >			
CN901	1-695-657-11	CONNECTOR, FFC (LIF(NON-ZIF)) 9P			
* CN902	1-568-950-11	PIN, CONNECTOR 12P			
* CN903	1-580-230-31	PIN, CONNECTOR (PC BOARD) 2P			
		< DIODE >			
D801	8-719-987-63	DIODE	1N4148M		
D802	8-719-987-63	DIODE	1N4148M		
D901	8-719-933-41	DIODE	HZS6C3L		
D902	8-719-933-50	DIODE	HZS7C2L		
D903	8-719-024-99	DIODE	11ES2-NTA2B		
D904	8-719-934-22	LED	HZS30-2L		
D905	8-719-014-74	DIODE	UZP-6.2B		
D906	8-719-025-03	DIODE	RBA-402-SL		
		< FERRITE BEAD >			
* FB901	1-410-858-21	INDUCTOR	0UH		
* FB903	1-410-858-21	INDUCTOR	0UH		
		< FUSE HOLDER >			
FH903	1-533-217-31	HOLDER, FUSE			
FH904	1-533-217-31	HOLDER, FUSE			
		< IC >			
IC801	8-759-502-31	IC	SI-18751		
IC851	8-759-502-31	IC	SI-18751		
IC901	8-759-602-66	IC	M5230L-A		
		< IC LINK >			
⚠ICP912	1-532-847-21	LINK, IC 6.3A (H490:AEP/H490M:AEP)			
⚠ICP913	1-532-847-21	LINK, IC 6.3A (H490:AEP/H490M:AEP)			
		< TRANSISTOR >			
Q801	8-729-119-78	TRANSISTOR	2SC2785-HFE		
Q802	8-729-119-78	TRANSISTOR	2SC2785-HFE		
Q803	8-729-119-78	TRANSISTOR	2SC2785-HFE		
Q804	8-729-119-78	TRANSISTOR	2SC2785-HFE		

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
Q901	8-729-209-15	TRANSISTOR 2SD2012	
Q902	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q903	8-729-900-80	TRANSISTOR DTC114ES	
Q904	8-729-209-15	TRANSISTOR 2SD2012	
Q905	8-729-209-15	TRANSISTOR 2SD2012	
Q906	8-729-141-83	TRANSISTOR 2SB1094-LK	
		< RESISTOR >	
R801	1-249-417-11	CARBON 1K 5% 1/4W	F
R802	1-249-437-11	CARBON 47K 5% 1/4W	
R803	1-249-435-11	CARBON 33K 5% 1/4W	
R804	1-249-416-11	CARBON 820 5% 1/4W	F
R805	1-247-903-00	CARBON 1M 5% 1/4W	
R806	1-249-438-11	CARBON 56K 5% 1/4W	
R809	1-249-389-11	CARBON 4.7 5% 1/4W	F
R810	1-249-441-11	CARBON 100K 5% 1/4W	
R811	1-249-389-11	CARBON 4.7 5% 1/4W	F
R812	1-249-438-11	CARBON 56K 5% 1/4W	
R851	1-249-417-11	CARBON 1K 5% 1/4W	F
R852	1-249-437-11	CARBON 47K 5% 1/4W	
R853	1-249-435-11	CARBON 33K 5% 1/4W	
R854	1-249-416-11	CARBON 820 5% 1/4W	F
R855	1-247-903-00	CARBON 1M 5% 1/4W	
R856	1-249-437-11	CARBON 47K 5% 1/4W	
R859	1-249-389-11	CARBON 4.7 5% 1/4W	F
R901	1-247-807-31	CARBON 100 5% 1/4W	
R902	1-249-432-11	CARBON 18K 5% 1/4W	
R903	1-247-856-00	CARBON 11K 5% 1/4W	
R904	1-249-432-11	CARBON 18K 5% 1/4W	
R905	1-247-842-11	CARBON 3K 5% 1/4W	
R906	1-249-425-11	CARBON 4.7K 5% 1/4W	F
R907	1-249-414-11	CARBON 560 5% 1/4W	F
R908	1-249-429-11	CARBON 10K 5% 1/4W	
R909	1-249-422-11	CARBON 2.7K 5% 1/4W	F
R910	1-247-903-00	CARBON 1M 5% 1/4W	
⚠R914	1-212-934-00	FUSIBLE 1 5% 1/2W	F
⚠R915	1-212-934-00	FUSIBLE 1 5% 1/2W	F
⚠R916	1-212-934-00	FUSIBLE 1 5% 1/2W	F
⚠R917	1-202-972-61	FUSIBLE 1 5% 1/4W	F
⚠R918	1-202-972-61	FUSIBLE 1 5% 1/4W	F
⚠R919	1-212-934-00	FUSIBLE 1 5% 1/2W	F
		< RELAY >	
RY801	1-515-920-11	RELAY (24V)	
		< TERMINAL >	
* TB901	4-925-530-01	PLATE, GROUND	

****

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS *************	
9	1-501-594-21	ANTENNA (FM) (H490)	
62	1-765-125-11	WIRE (FLAT TYPE) (9 CORE)	
63	1-765-124-11	WIRE (FLAT TYPE) (23 CORE)	
306	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
ANT1	1-501-321-51	ANTENNA, TELESCOPIC (H490)	
⚠CNP901	1-575-651-91	CORD, POWER	
⚠F902	1-532-284-00	FUSE (T630mA/250V)	
HE1	1-543-673-11	HEAD, MAGNETIC (ERASE) (DECK:B)	
HP1	1-543-319-11	HEAD, MAGNETIC (PB) (DECK:A)	
HRP1	1-543-319-11	HEAD, MAGNETIC (REC/PB) (DECK:B)	
M1	X-3362-377-1	MOTOR (WH) ASSY	
⚠T901	1-426-657-11	TRANSFORMER, POWER	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Sony Corporation
Consumer A&V Products Company
Home A&V Products Div.

English
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Quality Engineering Dept.

HCD-H450/H450M

SONY®
SERVICE MANUAL

US Model
Canadian Model
UK Model
HCD-H450M
AEP Model
HCD-H450/H450M
E Model
Australian Model
HCD–H450

SUPPLEMENT-1

File this supplement with the service manual.

1. MECHANICAL ADJUSTMENTS
2. ELECTRICAL ADJUSTMENTS
3. BLOCK DIAGRAM

9-959-372-81

Sony Corporation
Audio Group

English
94C18108-1
Printed in Japan
©1994.3
Published by Audio Sector Quality Assurance Dept.

1. MECHANICAL ADJUSTMENTS

1. Clean the following parts with a denatured alcohol-moistened swab:

record/playback heads	pinch rollers
erase heads	rubber belts
capstan	idlers

2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque meter	Meter reading
FWD	CQ-102C	30−70g·cm (0.42−0.97oz·inch)
FWD Back tension	CQ-102C	1.5−5.5g·cm (0.020−0.076oz·inch)
FF. REW	CQ-201B	63g·cm or more (0.87oz·inch)

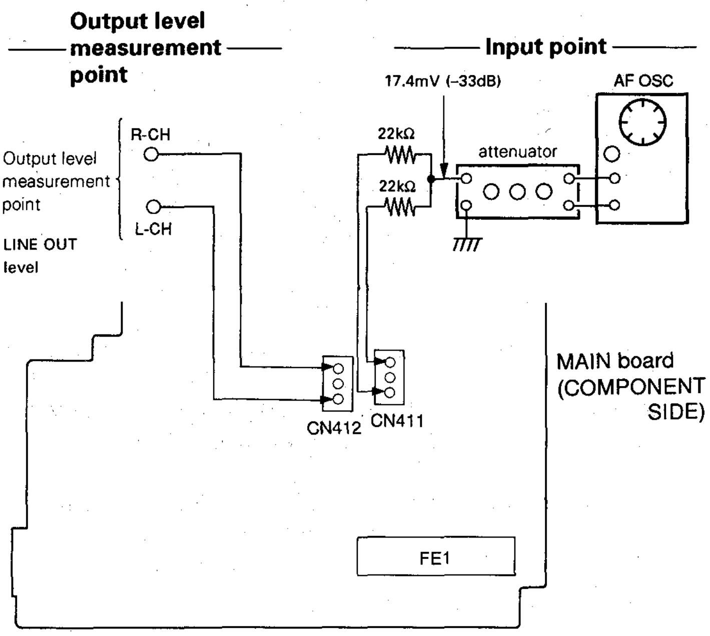
2. ELECTRICAL ADJUSTMENTS

DECK SECTION

1. The adjustment should be performed in the publication. (Be sure to make playback adjustment at first.)
2. The adjustment and measurement should be performed for both L-CH and R-CH.
   - Switch position

     DOLBY NR switch : OFF (AEP, German, Italian, East European, UK model)

     FUNCTION button : CD
3. Input point and output level measurement point.


Output level measurement point
Input point
17.4mV (–33dB)
AF OSC
R-CH
Output level measurement point
L-CH
LINE OUT level
22kΩ
22kΩ
attenuator
MAIN board (COMPONENT SIDE)
CN412
CN411
FE1

- **Test Tape**

Tape	Contents	Use
P-4-A100	10kH, –10dB	Head Azimuth Adjustment
P-4-L300	315Hz, 0dB	Level Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment

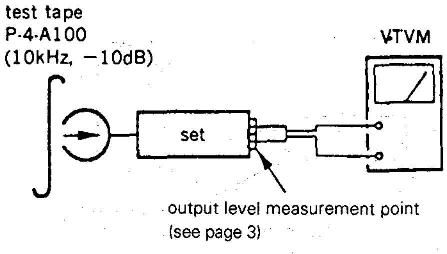
0dB = 0.775V

Record/Playback Head Azimuth Adjustment

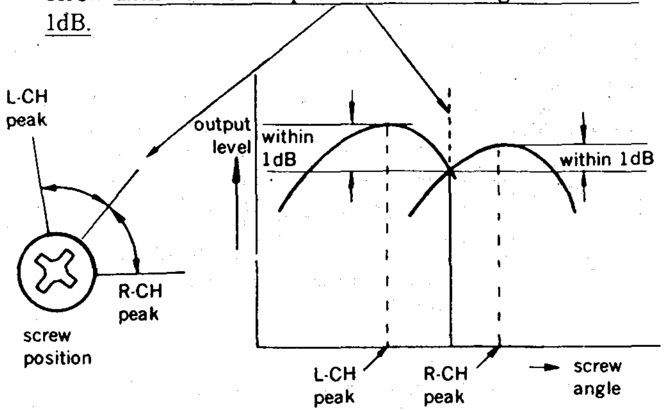
DECK A **DECK B**

Procedure :

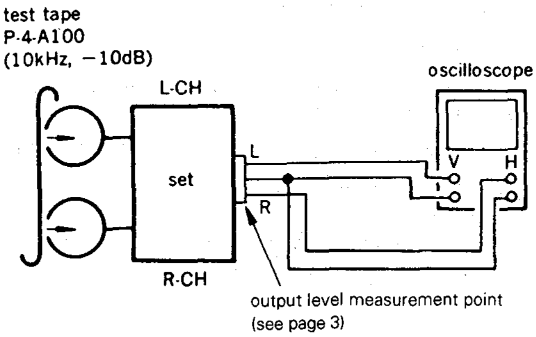
1. Forward Playback Mode

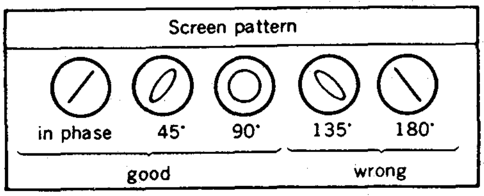

test tape
P-4-A100
(10kHz, –10dB)
set
VTVM
output level measurement point
(see page 3)

2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.


L-CH peak
output level
within 1dB
within 1dB
R-CH peak
screw position
L-CH peak
R-CH peak
screw angle

3. Playback Mode

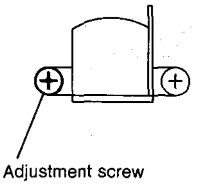

test tape
P-4-A100
(10kHz, –10dB)
L-CH
oscilloscope
set
L
R
V
H
R-CH
output level measurement point
(see page 3)

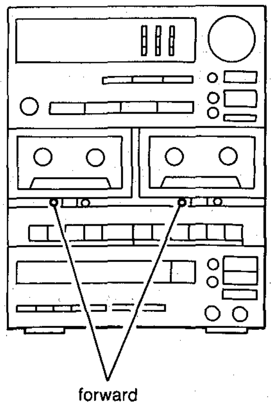

Screen pattern
in phase
45°
90°
135°
180°
good
wrong

4. After the adjustment, lock the adjustment screw with suitable locking compound.

Adjustment Location :

—record/playback head (deck A and B)

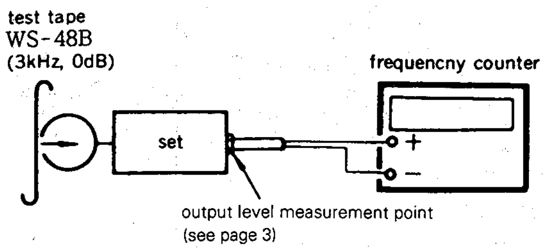

Adjustment screw



Tape Speed Adjustment DECK A DECK B

Procedure :

Mode : playback


test tape
WS-48B
(3kHz, 0dB)
frequencny counter
set
+
−
output level measurement point
(see page 3)

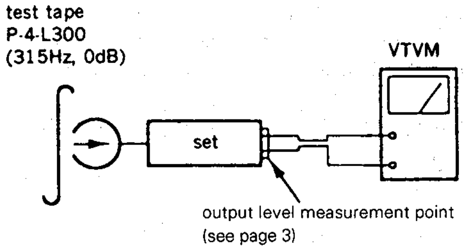
1. Set to FWD playback mode.
2. Adjust RV451 so that the frequency counter reading becomes 3,000 ± 10Hz.

Frequency difference between the begining and the end of the tape should be within ±3%.
Frequency difference between deck A and deck B the biginning of the tape should be within 1.5%.

Adjustment Location : MAIN board
(see page 6)

Playback Level Adjustment DECK A DECK B

Procedure :
Mode : playback


test tape
P-4-L300
(315Hz, 0dB)
VTVM
set
output level measurement point
(see page 3)

Deck A is RV301 (L-CH) and RV401 (R-CH), deck B is RV311 (L-CH) and RV411 (R-CH) so that adjustment within adjustment level as follows.

Adjustment Level :
LINE OUT level : −13.9 ± 0.5dB (0.148 to 0.166V)
Level Difference between Channels : within 0.5dB.

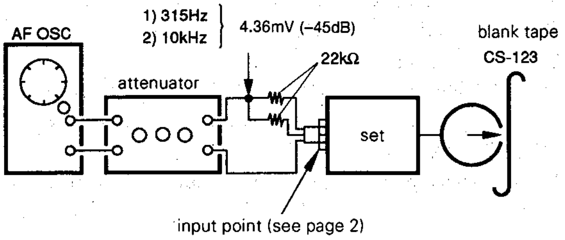
Confirm the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

Adjustment Location : MAIN board
(see page 6)

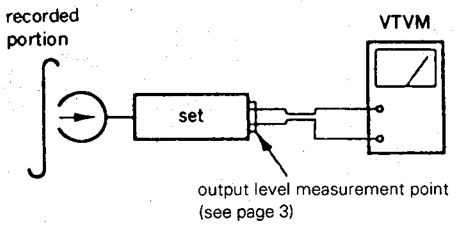
Record Bias Adjustment DECK B

Procedure :

1. record mode


AF OSC
1) 315Hz
2) 10kHz
4.36mV (−45dB)
22kΩ
attenuator
blank tape
CS-123
set
input point (see page 2)

2. playback mode


recorded
portion
VTVM
set
output level measurement point
(see page 3)

Confirm playback the signal recorded in step 1 become adjustment level as follows.
If these levels do not adjustment level, adjustment the RV304 (L-CH) and RV404 (R-CH) to repeat step 1 and 2.

Adjusment level : Playback output of 315Hz to playback output of 10kHz : −0.5dB to 0.5dB.
(0.732 to 0.821V)

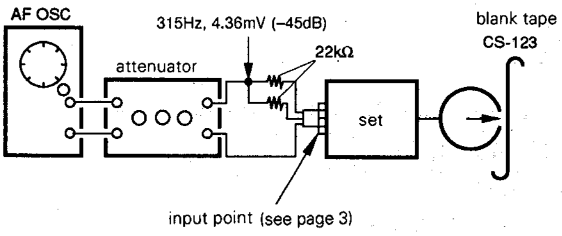
Adjustment Location : MAIN board
(see page 6)

Record Level Adjustment DECK B

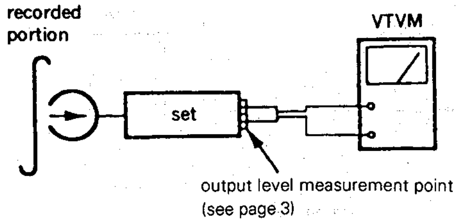
FUNCTION button: CD

Procedure :

1. record mode


AF OSC
315Hz, 4.36mV (−45dB)
22kΩ
attenuator
blank tape
CS-123
set
input point (see page 3)

2. playback mode


recorded
portion
VTVM
set
output level measurement point
(see page 3)

Confirm playback the tape recorded become adjustment level as follows.

If necessary, adjust RV303 (L-ch), RV403 (R-ch) and repeat the step 1 and 2.

Adjustment Value :

LINE OUT level : -30 ± 0.5dB (23.1 to 26mV)

Adjustment Location : MAIN board
(see page 6)

TUNER SECTION

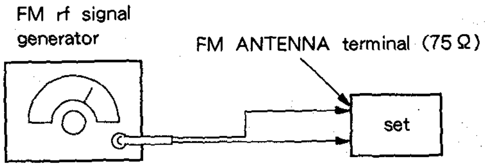
Precautions in Repairing

If the front end unit fails, it is difficult to repair the inner circuits, so replace the entire front end unit.

FM SECTION ADJUSTMENT

Setting:

STEREO/MUTE : OFF


FM rf signal generator
FM ANTENNA terminal (75 Ω)
set

Carrier frequency : 98MHz
Output level : 22μV (27dBμ)
Modulation : 1kHz, 75kHz deviation

FM Tuned Level Adjustment

Band : FM

Procedure:

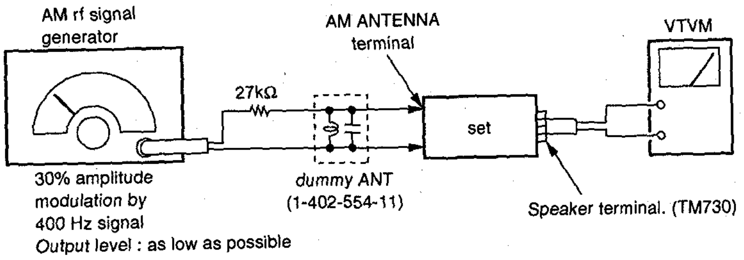
1. Tune the set to 98MHz.
2. Adjust RV51 to the point where "TUNED" sign on FL501 just turns light.

Adjustment Location : MAIN board (see page 6)

SW SECTION ADJUSTMENTS

H450 : E, Australian, Saudi Arabia, Malaysia, Singapore model

Setting :


AM rf signal generator
AM ANTENNA terminal
VTVM
27kΩ
set
30% amplitude modulation by 400 Hz signal
Output level : as low as possible
dummy ANT (1-402-554-11)
Speaker terminal. (TM730)

SW Tracking Adjustment

Repeat operation a few times, make waveform indicates maximum.

Band : SW

Adjust for maximum reading on VTVM.	
7MHz	T1
17MHz	CV1

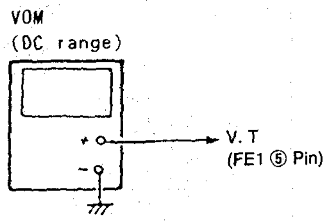
SW OSC Voltage adjustment

Repeat operation a few times, arrange so that Vt satisfy standard.

Band:SW

Procedure:

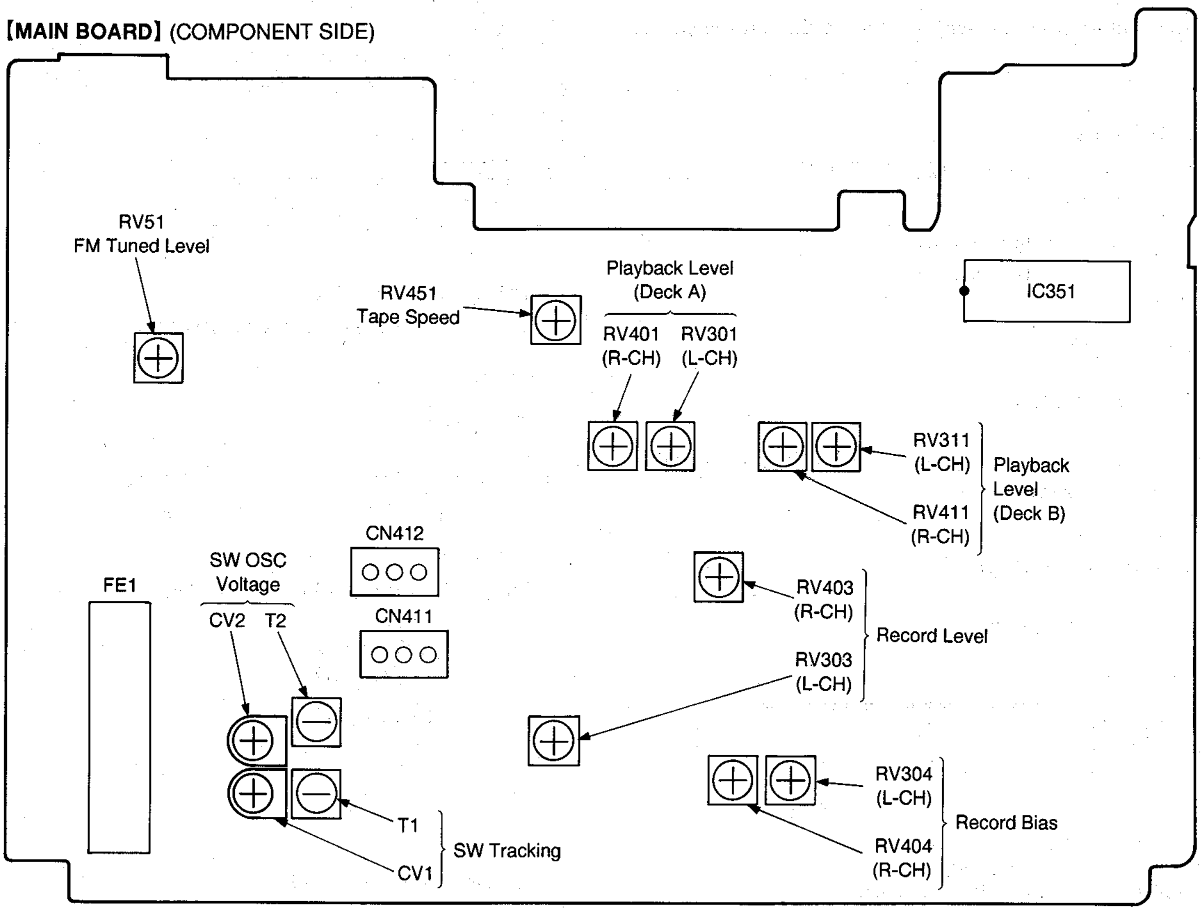
1. Press TUNING (+, −) button for 5.95MHz.
   Adjust T2 for 0.9 − 1.1V VOM reading.
2. Press the button for 17.9MHz.
   Adjust CV2 for 8.3 — 8.7V VOM reading.


VOM
(DC range)
+
−
V. T
(FE1 ⑤ Pin)

Adjustment Location : MAIN board (see page 6)

Adjustment Location :

[MAIN BOARD] (COMPONENT SIDE)



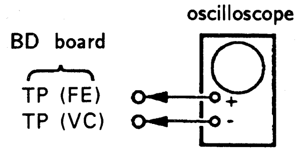
RV51
FM Tuned Level
RV451
Tape Speed
Playback Level
(Deck A)
RV401
(R-CH)
RV301
(L-CH)
IC351
RV311
(L-CH)
RV411
(R-CH)
Playback
Level
(Deck B)
CN412
CN411
FE1
SW OSC
Voltage
CV2
T2
RV403
(R-CH)
RV303
(L-CH)
Record Level
RV304
(L-CH)
RV404
(R-CH)
Record Bias
T1
CV1
SW Tracking

CD SECTION

Note :

1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

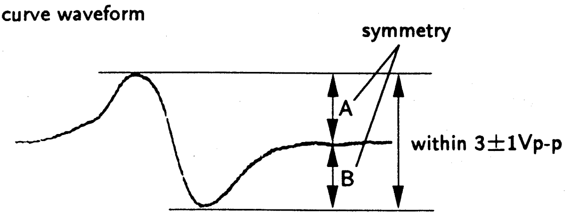
S-Curve Check


oscilloscope
BD board
TP (FE)
TP (VC)
+
-

Procedure :

1. Connect oscilloscope to test point TP (FE) on BD board.
2. Connect between test point TP (FEI) and TP (VC) by lead wire.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and turned Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3±1Vp-p.

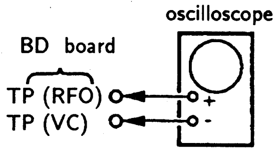
S-curve waveform



6. After check, remove the lead wire connected in step 2.

Note : · Try to measure several times to make sure that the ratio of A : B or B : A is more than 10 : 7.
· Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check


oscilloscope
BD board
TP (RFO)
TP (VC)
+
-

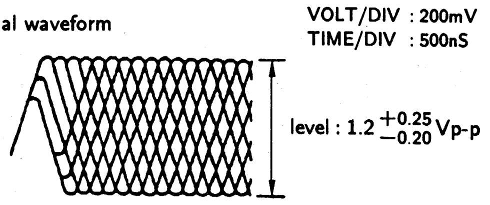
Procedure :

1. Connect oscilloscope to test point TP (RFO) on BD board.
2. Turned Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

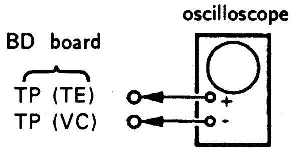
Note :

Clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.

RF signal waveform



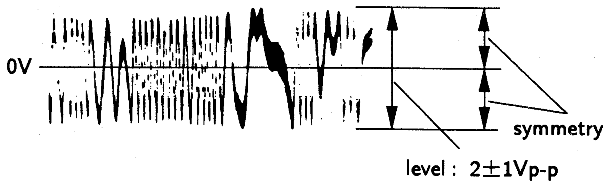
E-F Balance Check


oscilloscope
BD board
TP (TE)
TP (VC)
+
-

Procedure :

1. Connect test point TP (ADJ) to ground and TP (TEI) to TP (VC) with lead wire.
2. Connect oscilloscope to test point TP (TE) on BD board.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and playback.
5. Confirm that the osilloscope waveform is symmetrical on the top and bottom in relation to 0V, and check this level.

Traverse waveform

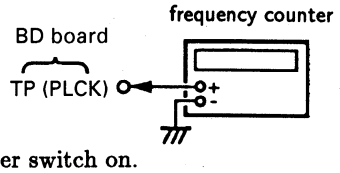


6. Remove the lead wire connected in step 1.

RF PLL Free-run Frequency Check

Procedure :

1. Connect frequency counter to test point (PLCK) with lead wire.

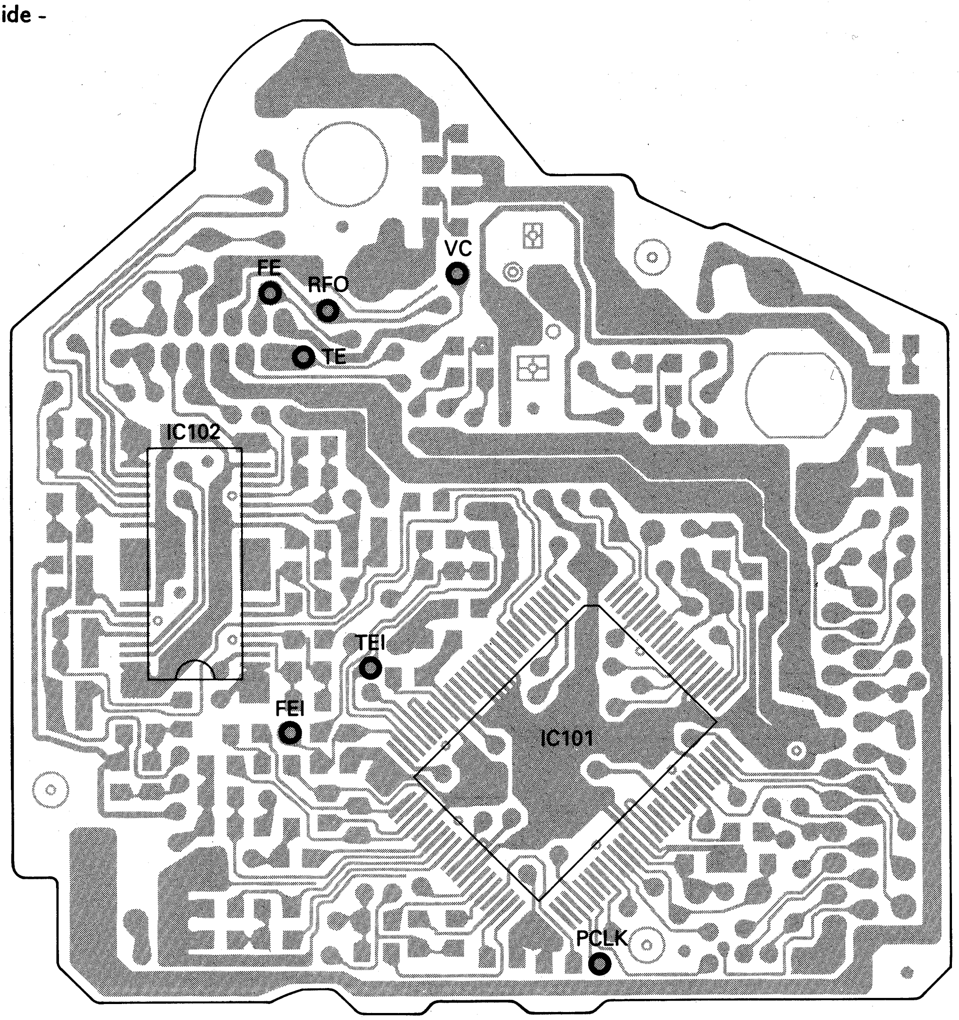

frequency counter
BD board
TP (PLCK)
+
-

2. Turned Power switch on.
3. Confirm that reading on frequency counter is 4.3218MHz.

Adjustment Location :

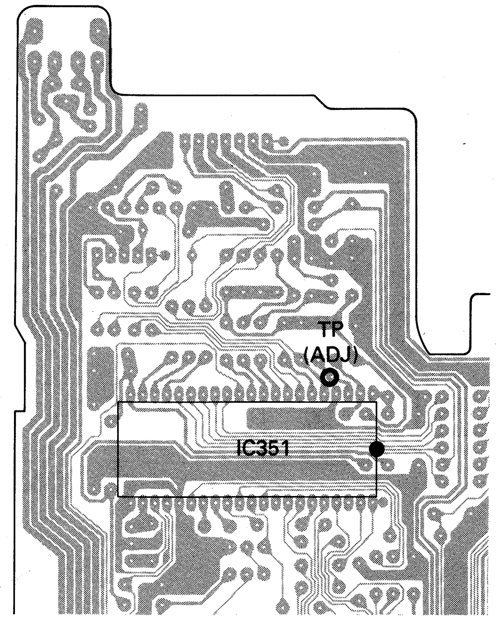
[BD BOARD]

- Conductor side -


FE
RFO
VC
TE
IC102
TEI
FEI
IC101
PCLK

[MAIN BOARD]

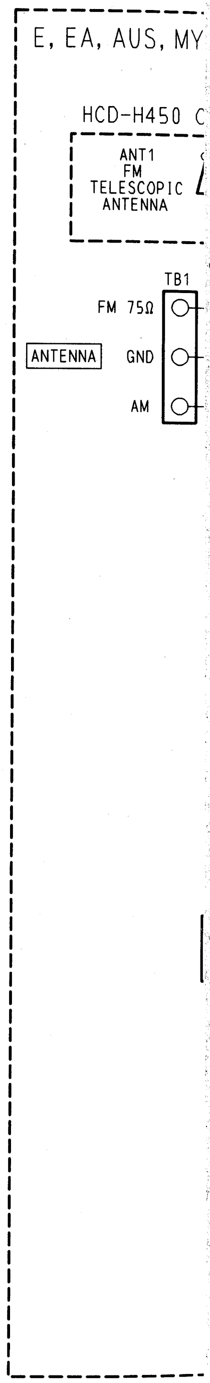
- Conductor side -


TP
(ADJ)
IC351

3. BLOCK DI

●Abbreviations
G:German
IT:Italian
MY:Malaysia
SP:Singapor

-TUNER BLC

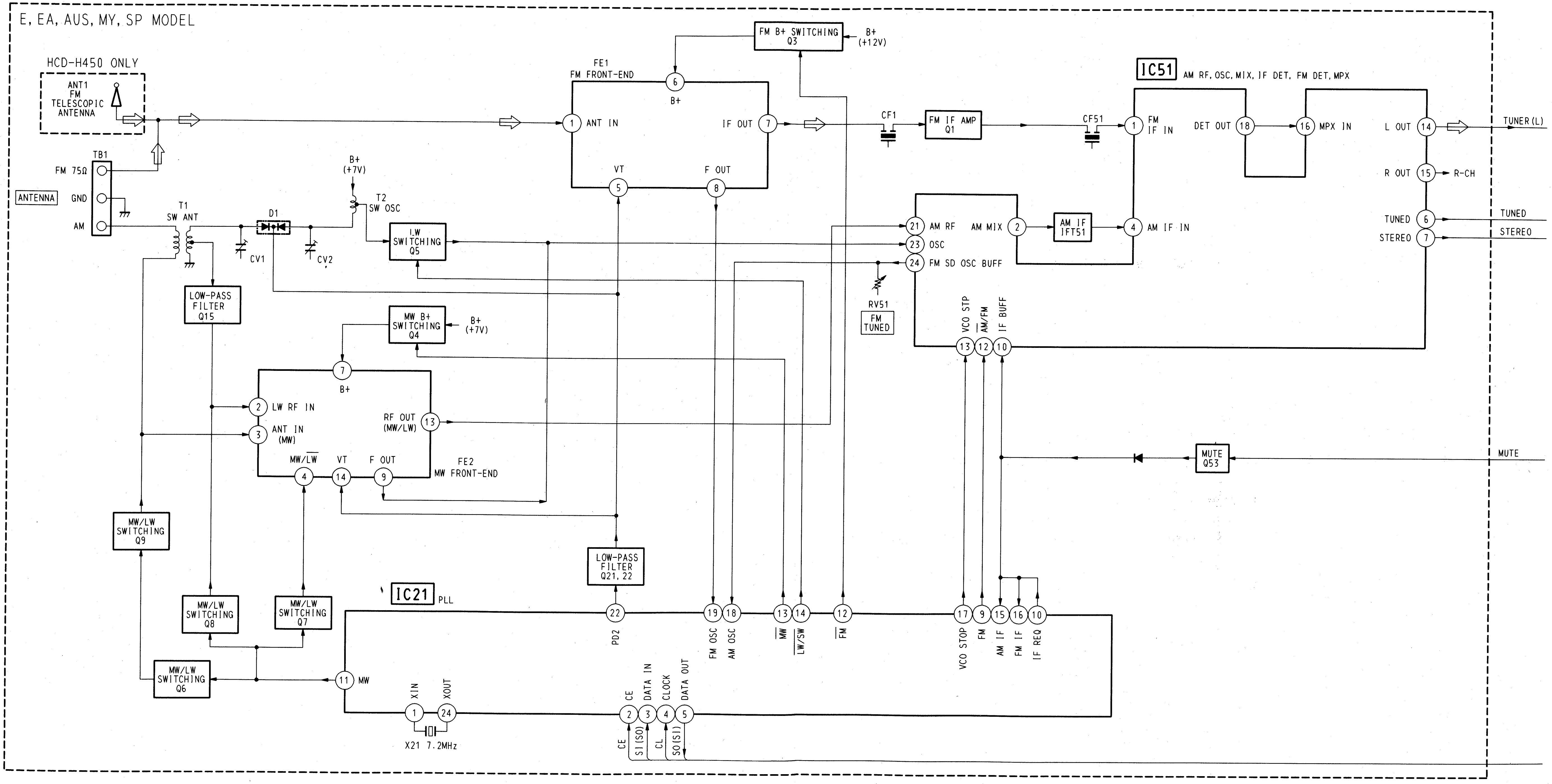

E, EA, AUS, MY
HCD-H450
ANT1
FM
TELESCOPIC
ANTENNA
TB1
FM 75Ω
ANTENNA
GND
AM

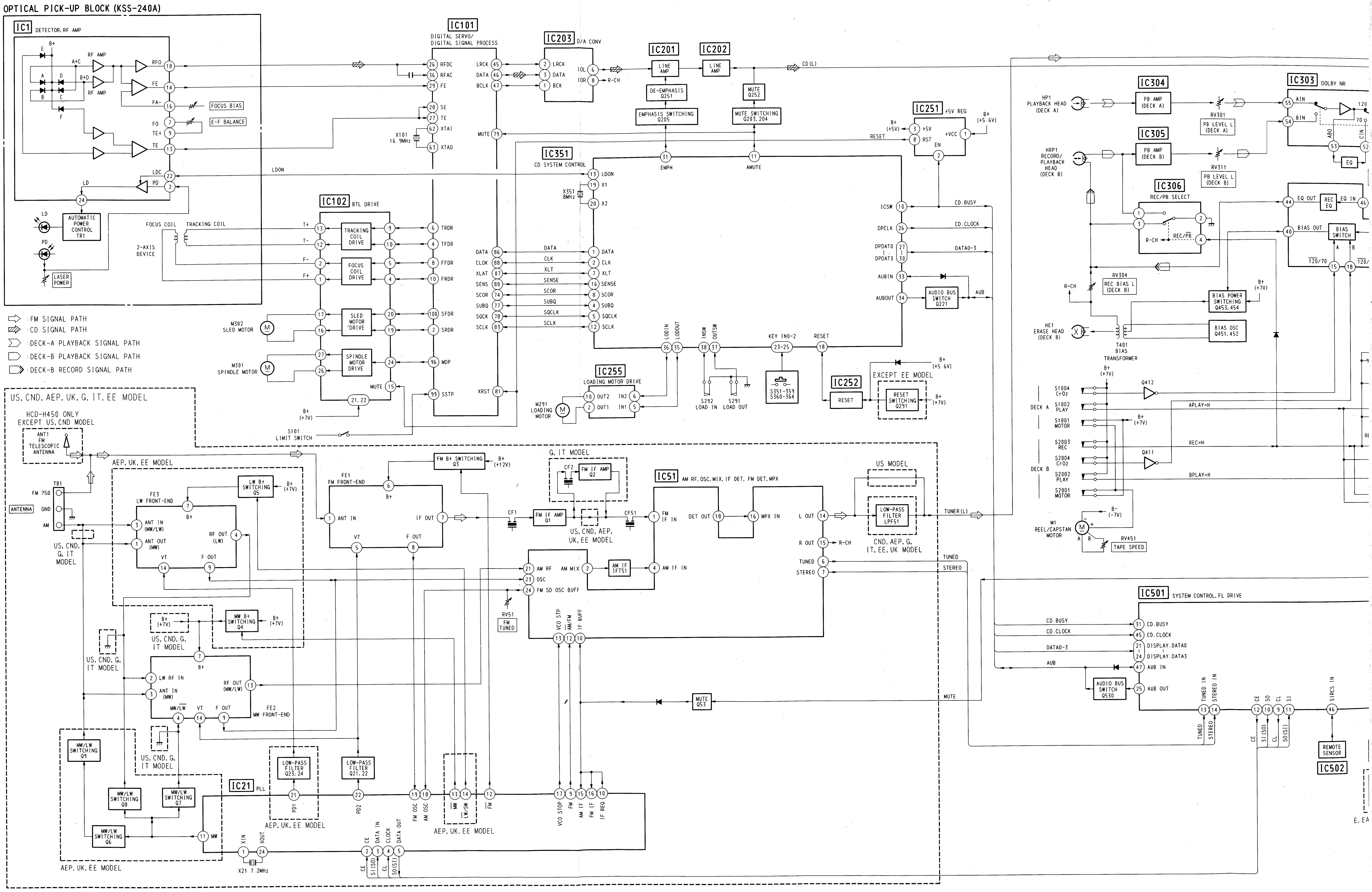
3. BLOCK DIAGRAM

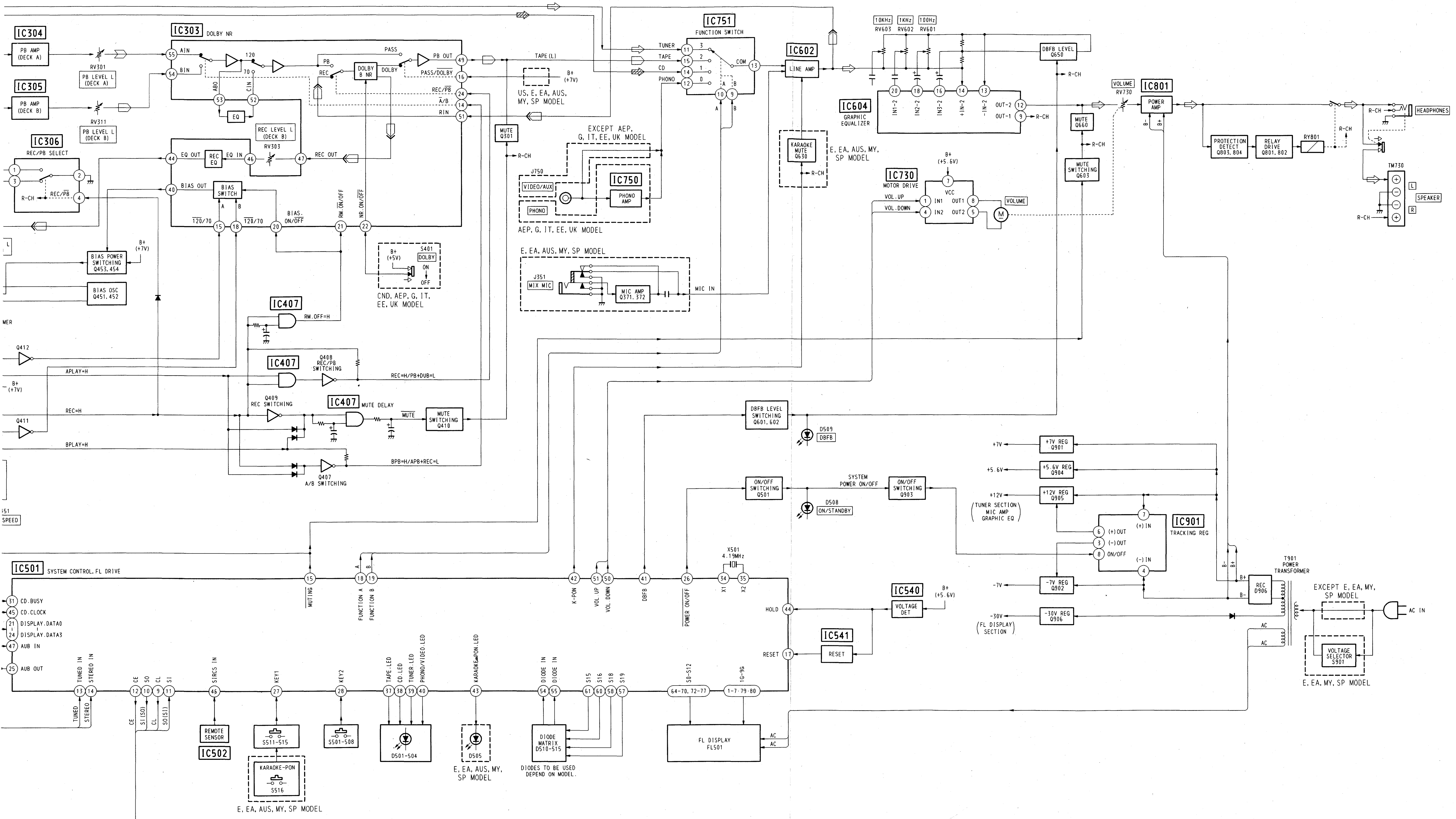
● Abbreviations

G:German	AUS:Australian
IT:Italian	EA:Saudi Arabia
MY:Malaysia	EE:East European
SP:Singapore	

-TUNER BLOCK-


E, EA, AUS, MY, SP MODEL
HCD-H450 ONLY
ANT1 FM TELESCOPIC ANTENNA
TB1
FM 75Ω
GND
AM
ANTENNA
T1 SW ANT
D1
CV1
CV2
B+ (+7V)
T2 SW OSC
LW SWITCHING Q5
LOW-PASS FILTER Q15
MW B+ SWITCHING Q4
B+ (+7V)
FM B+ SWITCHING Q3
B+ (+12V)
FE1 FM FRONT-END
6 B+
1 ANT IN
IF OUT 7
VT 5
F OUT 8
CF1
FM IF AMP Q1
CF51
IC51 AM RF, OSC, MIX, IF DET, FM DET, MPX
1 FM IF IN
DET OUT 18
16 MPX IN
L OUT 14
TUNER (L)
R OUT 15
R-CH
TUNED 6
TUNED
STEREO 7
STEREO
21 AM RF
AM MIX 2
AM IF IFT51
4 AM IF IN
23 OSC
24 FM SD OSC BUFF
RV51 FM TUNED
VCO STP 13
AM/FM 12
IF BUFF 10
MUTE Q53
MUTE
7 B+
2 LW RF IN
3 ANT IN (MW)
RF OUT (MW/LW) 13
MW/LW 4
VT 14
F OUT 9
FE2 MW FRONT-END
MW/LW SWITCHING Q9
MW/LW SWITCHING Q8
MW/LW SWITCHING Q7
MW/LW SWITCHING Q6
LOW-PASS FILTER Q21, 22
IC21 PLL
22 PD2
19 FM OSC
18 AM OSC
13 MW
14 LW/SW
12 FM
17 VCO STOP
9 FM
15 AM IF
16 FM IF
10 IF REQ
11 MW
1 XIN
24 XOUT
X21 7.2MHz
2 CE
3 DATA IN
4 CLOCK
5 DATA OUT
CE
SI (SO)
CL
SO (SI)


OPTICAL PICK-UP BLOCK (KSS-240A)
IC1 DETECTOR, RF AMP
RF AMP
RFO
FE
FA-
FO
TE+
TE
LDC
PD
LD
FOCUS BIAS
E-F BALANCE
AUTOMATIC POWER CONTROL TR1
LASER POWER
FOCUS COIL
TRACKING COIL
2-AXIS DEVICE
IC101 DIGITAL SERVO/ DIGITAL SIGNAL PROCESS
RFDC
RFAC
SE
TE
XTAI
XTAO
X101 16.9MHz
LRCK
DATA
BCLK
MUTE
XRST
IC203 D/A CONV
IOL
IOR
R-CH
IC201 LINE AMP
IC202 LINE AMP
DE-EMPHASIS Q251
EMPHASIS SWITCHING Q205
MUTE Q252
MUTE SWITCHING Q203, 204
CD (L)
IC251 +5V REG
RESET
EN
IC351 CD SYSTEM CONTROL
LDON
X351 8MHz
EMPH
AMUTE
ICSW
DPCLK
DPDAT0-DPDAT3
AUBIN
AUBOUT
AUDIO BUS SWITCH Q221
CD.BUSY
CD.CLOCK
DATA0-3
AUB
LDOIN
LDOOUT
INSW
OUTSW
KEY IN0-2
S351-359 S360-364
IC252 RESET
EXCEPT EE MODEL
RESET SWITCHING Q291
IC255 LOADING MOTOR DRIVE
M291 LOADING MOTOR
S292 LOAD IN
S291 LOAD OUT
IC102 BTL DRIVE
TRACKING COIL DRIVE
FOCUS COIL DRIVE
SLED MOTOR DRIVE
SPINDLE MOTOR DRIVE
TRDR
TFDR
FFDR
FRDR
SFDR
SRDR
MDP
SSTP
M302 SLED MOTOR
M301 SPINDLE MOTOR
S101 LIMIT SWITCH
⇨ : FM SIGNAL PATH
▨ : CD SIGNAL PATH
: DECK-A PLAYBACK SIGNAL PATH
: DECK-B PLAYBACK SIGNAL PATH
: DECK-B RECORD SIGNAL PATH
US, CND, AEP, UK, G, IT, EE MODEL
HCD-H450 ONLY EXCEPT US, CND MODEL
ANT1 FM TELESCOPIC ANTENNA
TB1
FM 75Ω
GND
AM
ANTENNA
US, CND, G, IT MODEL
AEP, UK, EE MODEL
FE3 LW FRONT-END
LW B+ SWITCHING Q5
ANT IN (MW/LW)
ANT OUT (MW)
RF OUT (LW)
MW B+ SWITCHING Q4
FE2 MW FRONT-END
LW RF IN
RF OUT (MW/LW)
MW/LW SWITCHING Q9
MW/LW SWITCHING Q8
MW/LW SWITCHING Q7
MW/LW SWITCHING Q6
FM B+ SWITCHING Q3
FE1 FM FRONT-END
IF OUT
G, IT MODEL
FM IF AMP Q2
CF2
CF1
FM IF AMP Q1
US, CND, AEP, UK, EE MODEL
CF51
IC51 AM RF, OSC, MIX, IF DET, FM DET, MPX
FM IF IN
DET OUT
MPX IN
L OUT
R OUT
TUNED
STEREO
AM RF
AM MIX
AM IF IFT51
AM IF IN
OSC
FM SD OSC BUFF
RV51 FM TUNED
VCO STP
AM/FM
IF BUFF
US MODEL
LOW-PASS FILTER LPF51
CND, AEP, G, IT, EE, UK MODEL
TUNER (L)
MUTE
MUTE Q53
IC21 PLL
LOW-PASS FILTER Q23, 24
LOW-PASS FILTER Q21, 22
PD1
PD2
FM OSC
AM OSC
LW/SW
VCO STOP
FM IF
IF REQ
XIN
XOUT
X21 7.2MHz
CE
DATA IN
CLOCK
DATA OUT
SI (SO)
CL
SO (SI)
HP1 PLAYBACK HEAD (DECK A)
IC304 PB AMP (DECK A)
RV301 PB LEVEL L (DECK A)
HRP1 RECORD/ PLAYBACK HEAD (DECK B)
IC305 PB AMP (DECK B)
RV311 PB LEVEL L (DECK B)
IC306 REC/PB SELECT
REC/PB
RV304 REC BIAS L (DECK B)
HE1 ERASE HEAD (DECK B)
T401 BIAS TRANSFORMER
BIAS POWER SWITCHING Q453, 454
BIAS OSC Q451, 452
IC303 DOLBY NR
AIN
BIN
EQ
EQ OUT
REC EQ
EQ IN
BIAS OUT
BIAS SWITCH
120/70
DECK A
S1004 CrO2
S1002 PLAY
S1001 MOTOR
DECK B
S2003 REC
S2004 CrO2
S2002 PLAY
S2001 MOTOR
Q412
Q411
APLAY=H
REC=H
BPLAY=H
M1 REEL/CAPSTAN MOTOR
RV451 TAPE SPEED
IC501 SYSTEM CONTROL, FL DRIVE
CD.BUSY
CD.CLOCK
DISPLAY.DATA0
DISPLAY.DATA3
AUB IN
AUDIO BUS SWITCH Q530
AUB OUT
TUNED IN
STEREO IN
SIRCS IN
REMOTE SENSOR
IC502
E, EA


IC304
PB AMP (DECK A)
RV301
PB LEVEL L (DECK A)
IC305
PB AMP (DECK B)
RV311
PB LEVEL L (DECK B)
IC306
REC/PB SELECT
IC303 DOLBY NR
AIN
BIN
PASS
PB OUT
PB
REC
DOLBY B NR
DOLBY
PASS/DOLBY
REC/PB
A/B
RIN
EQ
REC LEVEL L (DECK B)
RV303
EQ OUT
REC EQ
EQ IN
REC OUT
BIAS OUT
BIAS SWITCH
120/70
BIAS. ON/OFF
RM.ON/OFF
NR.ON/OFF
TAPE(L)
B+ (+7V)
US, E, EA, AUS, MY, SP MODEL
MUTE Q301
R-CH
BIAS POWER SWITCHING Q453, 454
BIAS OSC Q451, 452
S401 DOLBY ON OFF
B+ (+5V)
CND, AEP, G, IT, EE, UK MODEL
IC407
RM.OFF=H
Q412
APLAY=H
REC=H
BPLAY=H
Q411
Q408 REC/PB SWITCHING
REC=H/PB+DUB=L
Q409 REC SWITCHING
IC407 MUTE DELAY
MUTE
MUTE SWITCHING Q410
Q407 A/B SWITCHING
BPB=H/APB+REC=L
IC751 FUNCTION SWITCH
TUNER
TAPE
CD
PHONO
COM
EXCEPT AEP, G, IT, EE, UK MODEL
J750
VIDEO/AUX
PHONO
IC750
PHONO AMP
AEP, G, IT, EE, UK MODEL
E, EA, AUS, MY, SP MODEL
J351 MIX MIC
MIC AMP Q371, 372
MIC IN
IC602
LINE AMP
KARAOKE MUTE Q630
E, EA, AUS, MY, SP MODEL
10KHz 1KHz 100Hz
RV603 RV602 RV601
IC604 GRAPHIC EQUALIZER
IN1-2
IN2-2
IN3-2
+IN-2
-IN-2
OUT-2
OUT-1
DBFB LEVEL Q650
MUTE Q660
MUTE SWITCHING Q603
VOLUME RV730
IC801
POWER AMP
IC730 MOTOR DRIVE
B+ (+5.6V)
VOL.UP
VOL.DOWN
VCC
IN1 OUT1
IN2 OUT2
VOLUME
PROTECTION DETECT Q803, 804
RELAY DRIVE Q801, 802
RY801
HEADPHONES
TM730
SPEAKER
L
R
DBFB LEVEL SWITCHING Q601, 602
D509 DBFB
ON/OFF SWITCHING Q501
SYSTEM POWER ON/OFF
ON/OFF SWITCHING Q903
D508 ON/STANDBY
+7V REG Q901
+5.6V REG Q904
+12V REG Q905
(TUNER SECTION MIC AMP GRAPHIC EQ)
IC901 TRACKING REG
(+)OUT
(-)OUT
ON/OFF
(+)IN
(-)IN
-7V REG Q902
-30V REG Q906
(FL DISPLAY SECTION)
REC D906
T901 POWER TRANSFORMER
EXCEPT E, EA, MY, SP MODEL
AC IN
VOLTAGE SELECTOR S901
E, EA, MY, SP MODEL
IC501 SYSTEM CONTROL, FL DRIVE
CD.BUSY
CD.CLOCK
DISPLAY.DATA0
DISPLAY.DATA3
AUB IN
AUB OUT
MUTING
FUNCTION A
FUNCTION B
K-PON
VOL UP
VOL DOWN
DBFB
POWER ON/OFF
X501 4.19MHz
X1 X2
HOLD
RESET
IC540 VOLTAGE DET
B+ (+5.6V)
IC541 RESET
TUNED IN
STEREO IN
CE SO CL SI
SIRCS IN
KEY1
KEY2
TAPE.LED
CD.LED
TUNER.LED
PHONO/VIDEO.LED
KARAOKE-PON.LED
DIODE IN
S15 S16 S18 S19
S0-S12
1G-9G
REMOTE SENSOR
IC502
S511-515
KARAOKE-PON S516
E, EA, AUS, MY, SP MODEL
S501-508
D501-504
D505
E, EA, AUS, MY, SP MODEL
DIODE MATRIX D510-515
DIODES TO BE USED DEPEND ON MODEL.
FL DISPLAY FL501
AC

HCD-H490/H490M

SERVICE MANUAL

AEP Model

- This Service Manual covers only the difference from the HCD-H450/H450M. Therefore, please refer to also the HCD-H450/H450M Service Manual (9-959-372-11) in performing the repair.
  - For the German model of HCD-H490M, refer to the German model of HCD-H450.
  - HCD-H490 is the tuner, deck, CD and amplifier section in FH-B490.
  - HCD-H490M is the tuner, deck, CD and amplifier section in MHC-490.

DIFFERENCES OF SPECIFICATION

Page	HCD-H450/H450M			HCD-H490/H490M		
	General			**General**		
	Destination	Power requirements	Power consumption	Destination	Power requirements	Power consumption
2	AEP, German, Italian, East European model	220 — 230 V AC, 50/60 Hz	55 W	AEP, German, Italian model	220 — 230 V AC, 50/60 Hz	60 W

1. ELECTRICALLY DIFFERENTE PARTS LIST

	HCD-H450/H450M			HCD-H490/H490M		
Page	Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
47	*	A-4369-109-A	DISPLAY BOARD, COMPLETE (H450:AEP/H450M:AEP)	*	A-4369-118-A	DISPLAY BOARD, COMPLETE (AEP,G)
	*	A-4369-118-A	DISPLAY BOARD, COMPLETE (H450:G)	*	A-4377-169-A	DISPLAY BOARD, COMPLETE (H490:IT)
	*	A-4369-119-A	DISPLAY BOARD, COMPLETE (H450:IT)			
53	D201	8-719-200-82	DIODE 11ES2	D201	8-719-024-99	DIODE 11ES2-NTA2B
58	RV730	1-223-608-11	RES, VAR, CARBON 100K/100K	RV730	1-223-652-12	RES, VAR, CARBON 100K/100K (VOLUME)
	*	A-4369-122-A	POWER BOARD, COMPLETE (H450:G,IT)	*	A-4371-543-A	POWER BOARD, COMPLETE (H490:G,IT/H490M:G)
59	D903	8-719-200-82	DIODE 11ES2	D903	8-719-024-99	DIODE 11ES2-NTA2B

MICROFILM

MINI Hi-Fi COMPONENT SYSTEM

SONY®

2. EXPLODED VIEW DIFFERENT PARTS LIST

	HCD-H450/H450M			HCD-H490/H490M		
Page	Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
39	1	A-4353-939-A	LID (A) ASSY, CASSETTE	1	A-4361-316-A	LID (A) ASSY, CASSETTE
	2	A-4353-941-A	LID (B) ASSY, CASSETTE (H450:AEP,G,IT)	2	A-4361-317-A	LID (B) ASSY, CASSETTE (H490/H490M:G)
	2	A-4353-944-A	LID (B) ASSY, CASSETTE (H450M:CND,AEP,UK,EE)	2	A-4361-330-A	LID (B) ASSY, CASSETTE (H490M:AEP)
	3	4-964-858-01	KNOB (V)	3	4-964-858-21	KNOB (V)
	*8	A-4369-122-A	POWER BOARD, COMPLETE (H450:G,IT)	*8	A-4371-543-A	POWER BOARD, COMPLETE (H490:G,IT/H490M:G)
40	51	A-4353-938-A	PANEL ASSY, FRONT (H450:AEP,G,IT/H450M:CND,AEP,UK,EE)	51	A-4361-315-A	PANEL ASSY, FRONT
	52	4-963-655-01	BUTTON (CDP)	52	4-963-655-11	BUTTON (CDP)
	53	4-964-103-01	BUTTON (CD)	53	4-964-103-11	BUTTON (CD)
	54	4-964-111-01	BUTTON (TA)	54	4-964-111-11	BUTTON (TA)
	56	4-964-102-11	BUTTON (POWER/FUNCTION) (H450:AEP,G,IT/H450M:AEP,UK,EE)	56	4-964-102-21	BUTTON (POWER/FUNCTION)
	*57	A-4369-109-A	DISPLAY BOARD, COMPLETE (AEP)	*57	A-4369-118-A	DISPLAY BOARD, COMPLETE (AEP,G)
	*57	A-4369-118-A	DISPLAY BOARD, COMPLETE (H450:G)	*57	A-4377-169-A	DISPLAY BOARD, COMPLETE (H490:IT)
	*57	A-4369-119-A	DISPLAY BOARD, COMPLETE (H450:IT)			
	60	4-963-286-11	PANEL, LOADING	60	4-963-286-21	PANEL, LOADING

Sony Corporation
Consumer A&V Products Company
Home A&V Products Div.

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SONY FHB450

MODEL

SERVICE MANUAL

MC-Service

Wow and flutter
0.1% WRMS ± 0.3% (DIN)

Compact disc player section

System	Compact disc digital audio system
Laser	Semiconductor laser Wavelength=780 — 790 nm

General

Destination	Power requirements	Power consumption
Canadian model	120 V AC, 50 Hz	55 W
Australian model	220 — 240 V AC, 50 Hz	55 W
AEP, German, Italian, East European model	220 — 230 V AC, 50/60 Hz	55 W
UK model	240 V AC, 50 Hz	55 W
E, Saudi Arabia, Malaysia, Singapore model	110 — 120 V / 220 V — 240 V AC, 50/60 Hz Adjustable with the Voltage Selector	55 W

Dimensions	Approx. 225 × 285 × 275 mm (w/h/d) incl. projecting parts and controls
Mass	Approx. 5.2 kg

Design and specifications subject to change without notice.

Note
This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol □□ are trademarks of Dolby Laboratories Licensing Corporation.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

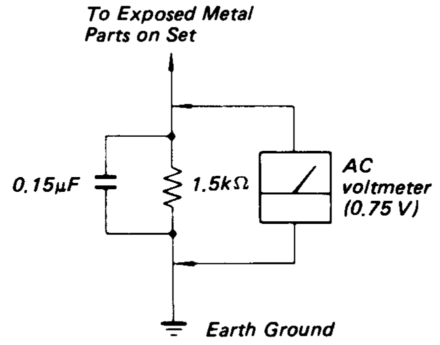
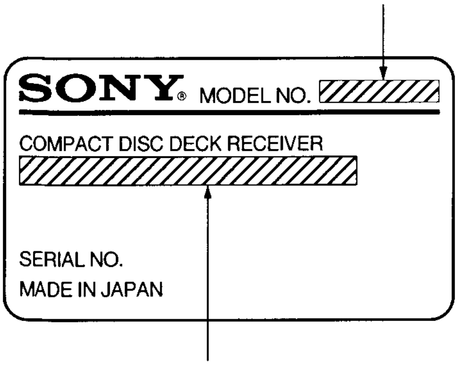


Fig. A. Using an AC voltmeter to check AC leakage.

MODEL IDENTIFICATION

— Specification Labels —

AEP, German, Italian, E, Saudi Arabia, Australian,
Malaysia, Singapore model : HCD-H450
US, Canadian, AEP, East European, UK model : HCD-H450M



US, Canadian model : AC : 120V 60Hz
AEP, East Europoean model : AC : 220—230V～50/60Hz
UK, Australian model : AC : 240V～50Hz
German, Italian model : AC : 220—230V～50HZ
E, Saudi Arabia, Malaysia,
Singapore model : AC : 110—120／220—240V～50/60Hz

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

For customers in Europe

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM.
ADVARSEL : USYNLIG LASERSTRALING VED ÅBNING NAR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGA UDSÆTTELSE FOR STRALING
VARO! : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA LASERSÄTEILYLLE
VARNING : LASERSTRALING NAR DENNA DEL ÄR OPPNAD OCH SPARREN ÄR URKOPPLAD
ADVARSEL : USYNLIG LASERSTRALING NAR DEKSEL APNES UNNGA EKSPONERING FOR STRALEN

This caution label is located inside the unit.

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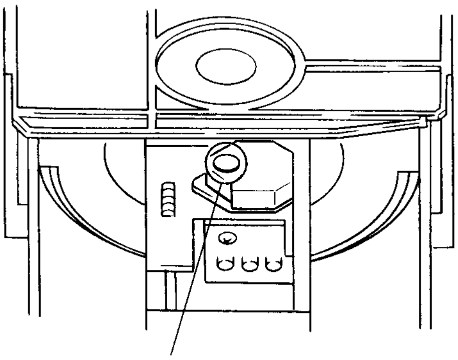
SECTION 1
SERVICING NOTES

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

1. Make POWER switch on with no disc inserted and disc table closed.
2. Confirm that the following operation is performed while observing the objecting lens.



❶ Confirm that laser beam is spread.

❷ Up and down motion of the objective lens. (3 times)

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

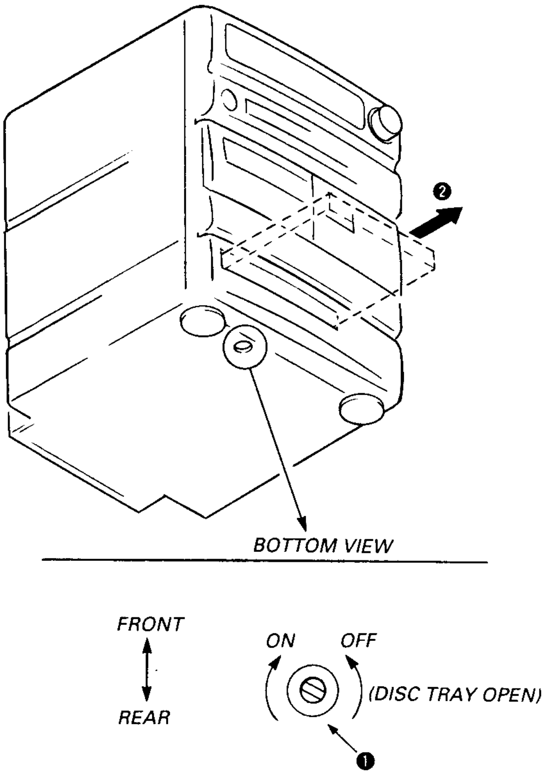
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH TURNS OFF



(1) Insert to ❶ for tapering driver, etc., and turn in the direction of arrow OFF. (Disc tray open)

(2) Tray as come out little of front panel, pull out in the direction of arrow ❷ by hand.

SECTION 2
GENERAL

This section is extracted from instruction manual.

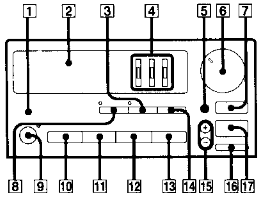
US, Canadian, E, Australian, Saudi Arabia, Malaysia, Singapore model

Index to Parts and Controls

Refer to the pages indicated in parentheses for how to use the controls.

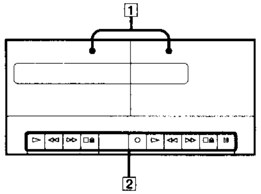
Front Panel

Tuner/Amplifier



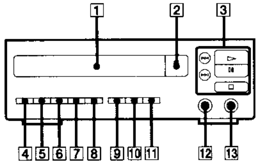
1 Remote sensor
2 Display window (6)
3 DBFB button and lamp (14)
4 Graphic equalizer controls (14)
5 MEMORY button (10)
6 VOLUME control (6 , 14)
7 PRESET/TUNING button (9, 10)
8 KARAOKE PON button and lamp (15)
***Except for US, Canadian models**
9 SYSTEM POWER button (6)
10 TAPE button and lamp (11)
11 CD button and lamp (6)
12 TUNER button and lamp (9)
13 VIDEO button and lamp (15)
14 MONO button (9)
15 TUNER buttons (9)
16 SHIFT button (10)
17 BAND button (9)

Tape player



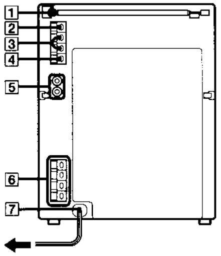
1 Cassette compartments
2 Tape operating buttons
▷ (play) (11)
▶▶ (fast forward) (11)
◀◀ (rewind) (11)
■≜ (stop/eject) (11)
● (recording)(for deck B only) (11)
❚❚ (pause)(for deck B only) (11)

CD player



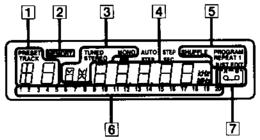
1 CD tray (6)
2 ≜ OPEN/CLOSE button (6)
3 CD player operating buttons
▷ (play) (6)
❚❚ (pause) (6)
■ (stop) (6)
⏮◀◀/▷▷⏭ (manual search/ AMS) buttons (6)
4 CONTINUE button (7)
5 SHUFFLE button (7)
6 PROGRAM button (7)
7 REPEAT button (8)
8 TIME button (7)
9 CHECK button (7)
10 CLEAR button (7)
11 EDIT button (12)
12 MIX MIC jack (15)
***Except for US, Canadian models**
13 HEADPHONES jack (14)

Rear Panel



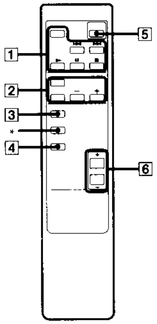
1 FM telescopic aerial
2 FM 75Ω terminal (4)
3 ⏚ earth terminal (4)
4 AM terminal (4)
5 VIDEO/AUX jacks (15)
6 SPEAKER connector (4)
7 AC power cord (5)

Display Window



1 TRACK number/PRESET radio code indication (6, 10)
2 MEMORY indication (10)
3 Tuner indication (9)
4 Time/frequency indication (6, 9)
5 CD play mode indication (7)
6 Music calendar (6)
7 Tape recording side indication (12)

Remote commander



1 CD operating buttons
CD (CD mode) button (6)
▶ (play) (6)
⏮/⏭ (AMS*) (6)
❚❚ (pause) (6)
■ (stop) (6)
* AMS: Automatic Music Sensor
2 Tuner operating buttons
TUNER (TUNER mode) button (9)
SHIFT button (10)
PRESET+/– buttons (10)
3 TAPE button (11)
4 VIDEO button (15)
5 SYSTEM POWER button (6)
6 VOL (volume) buttons (6,14)

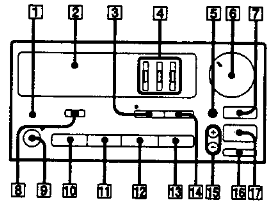
AEP, German, Italian, East European, UK model

Index to Parts and Controls

Refer to the pages indicated in parentheses for how to use the controls.

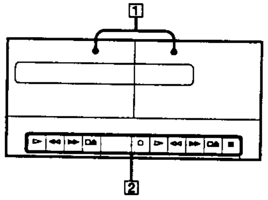
Front Panel

Tuner/Amplifier



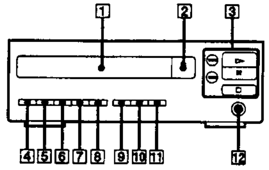
1 Remote sensor
2 Display window (6)
3 DBFB button and lamp (14)
4 Graphic equalizer controls (14)
5 MEMORY button (10)
6 VOLUME control (6 , 14)
7 PRESET/TUNING button (9, 10)
8 DOLBY NR switch (11)
9 SYSTEM POWER button (6)
10 TAPE button and lamp (11)
11 CD button and lamp (6)
12 TUNER button and lamp (9)
13 PHONO button and lamp (15)
14 MONO button (9)
15 TUNER buttons (9)
16 SHIFT button (10)
17 BAND button (9)

Tape player



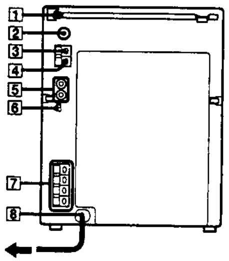
1 Cassette compartments
2 Tape operating buttons
  ▷ (play) (11)
  ▶▶ (fast forward) (11)
  ◀◀ (rewind) (11)
  ■≜ (stop/eject) (11)
  ● (recording)(for deck B only) (11)
  ❚❚ (pause)(for deck B only) (11)

CD player



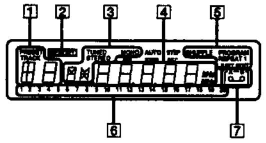
1 CD tray (6)
2 ≜ OPEN/CLOSE button (6)
3 CD player operating buttons
  ▷ (play) (6)
  ❚❚ (pause) (6)
  ■ (stop) (6)
  ⏮◀◀/▷▷⏭ (manual search/ AMS) buttons (6)
4 CONTINUE button (7)
5 SHUFFLE button (7)
6 PROGRAM button (7)
7 REPEAT button (8)
8 TIME button (7)
9 CHECK button (7)
10 CLEAR button (7)
11 EDIT button (12)
12 HEADPHONES jack (14)

Rear Panel



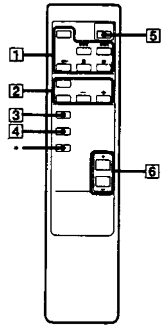
1 FM telescopic aerial (FH-B450 only)
2 FM 75Ω terminal (4)
3 ⏚ earth terminal (4)
4 AM terminal (4)
5 PHONO jacks (15)
6 ISS switch* (13)
  * Except for German and Italian models
7 SPEAKER connector (4)
8 AC power cord (5)

Display Window



1 TRACK number/PRESET radio code indication (6, 10)
2 MEMORY indication (10)
3 Tuner indication (9)
4 Time/frequency indication (6, 9)
5 CD play mode indication (7)
6 Music calendar (6)
7 Tape recording side indication (12)

Remote commander



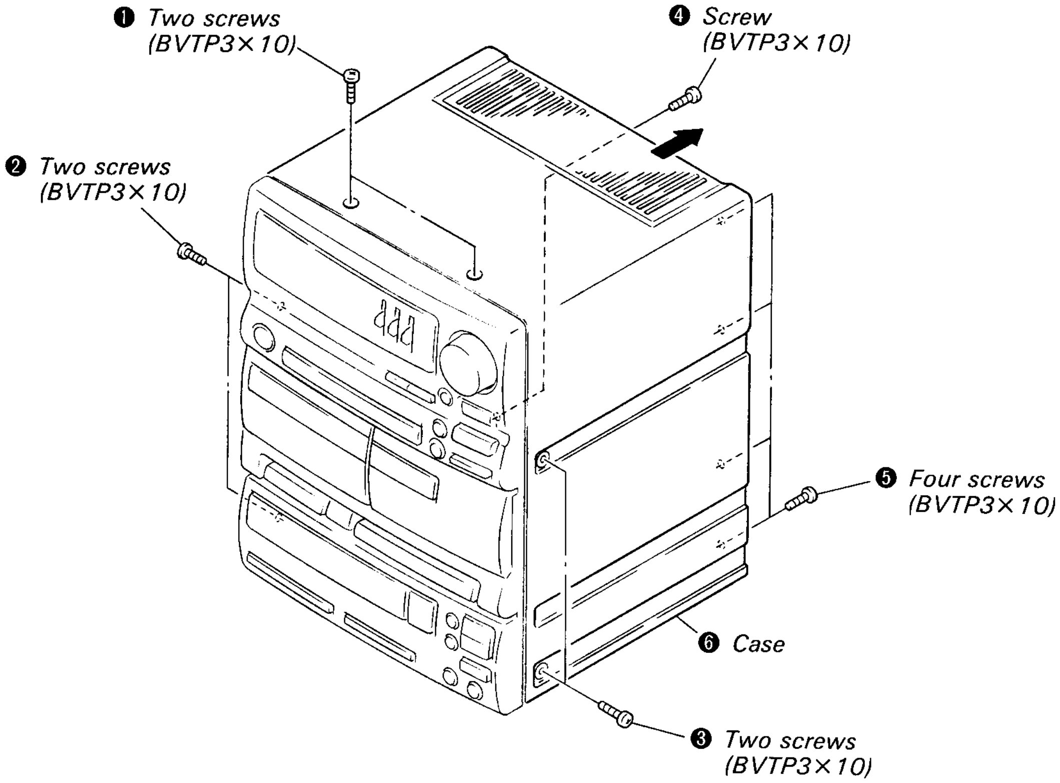
1 CD operating buttons
  CD (CD mode) button (6)
  ▶ (play) (6)
  ⏮/⏭ (AMS*) (6)
  ❚❚ (pause) (6)
  ■ (stop) (6)
  * AMS: Automatic Music Sensor
2 Tuner operating buttons
  TUNER (TUNER mode) button (9)
  SHIFT button (10)
  PRESET+/– buttons (10)
3 TAPE button (11)
4 PHONO button (15)
5 SYSTEM POWER button (6)
6 VOL (volume) buttons (6,14)

SECTION 3
DISASSEMBLY

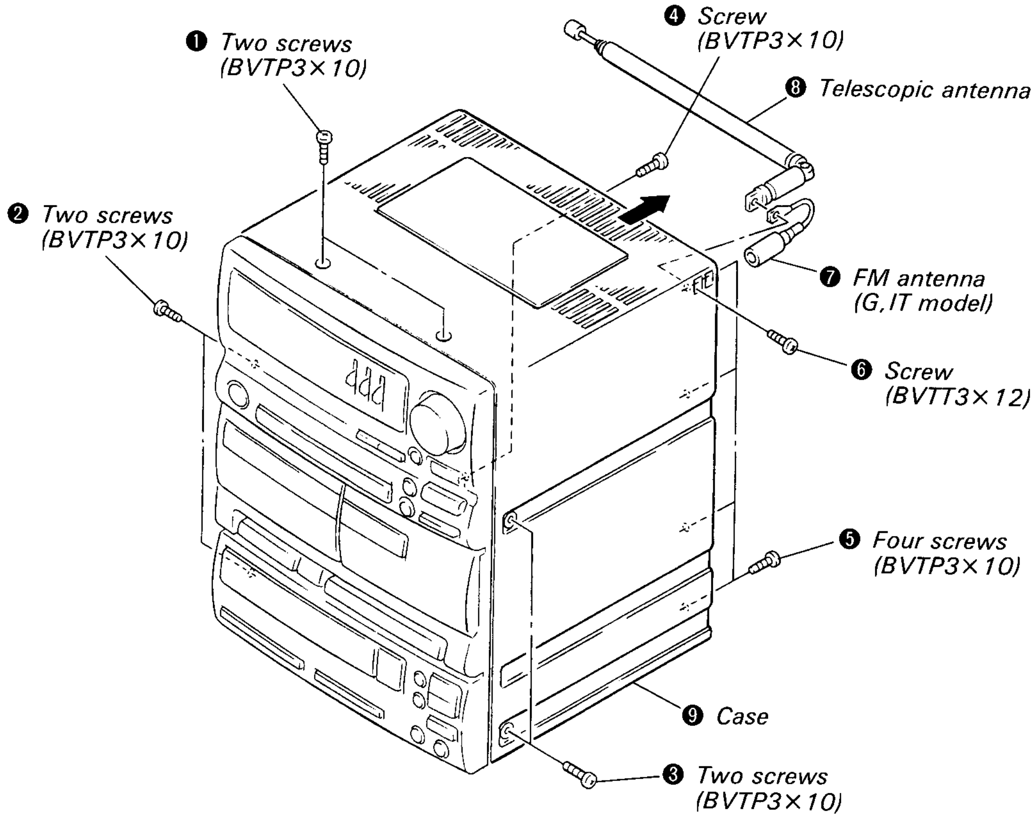
NOTE: Follow the disassembly procedure in the numerical order given.

3-1. CASE REMOVAL

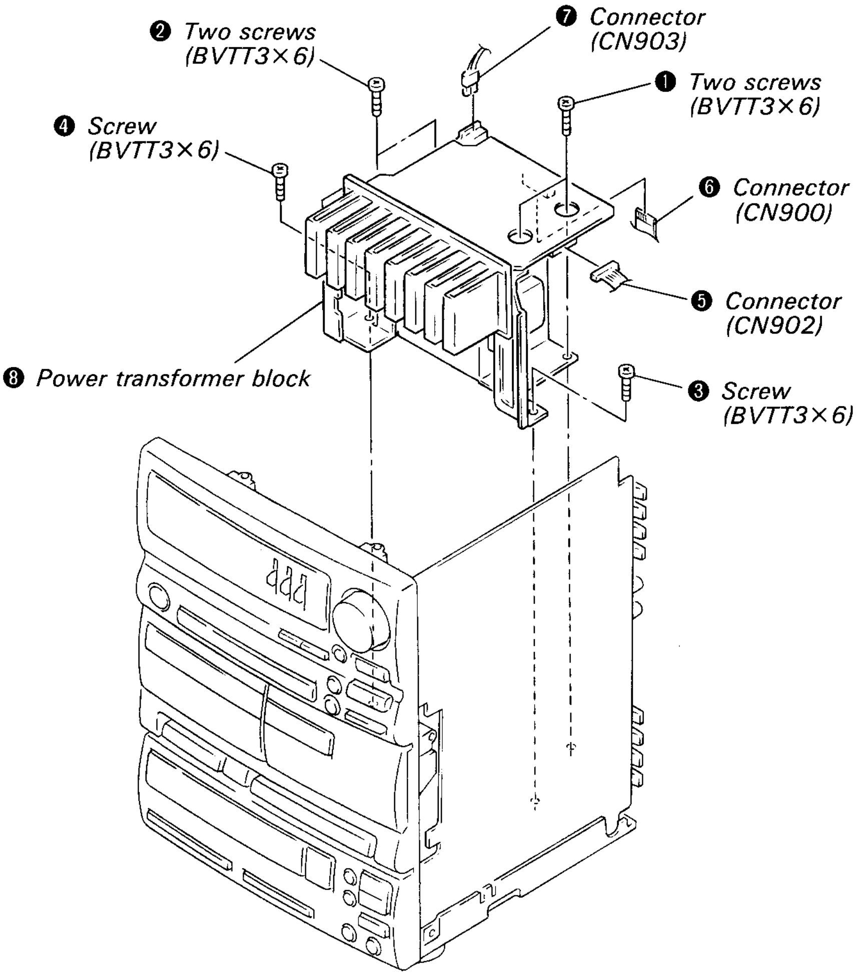
(HCD-H450M model)


❶ Two screws (BVTP3×10)
❹ Screw (BVTP3×10)
❷ Two screws (BVTP3×10)
❺ Four screws (BVTP3×10)
❻ Case
❸ Two screws (BVTP3×10)

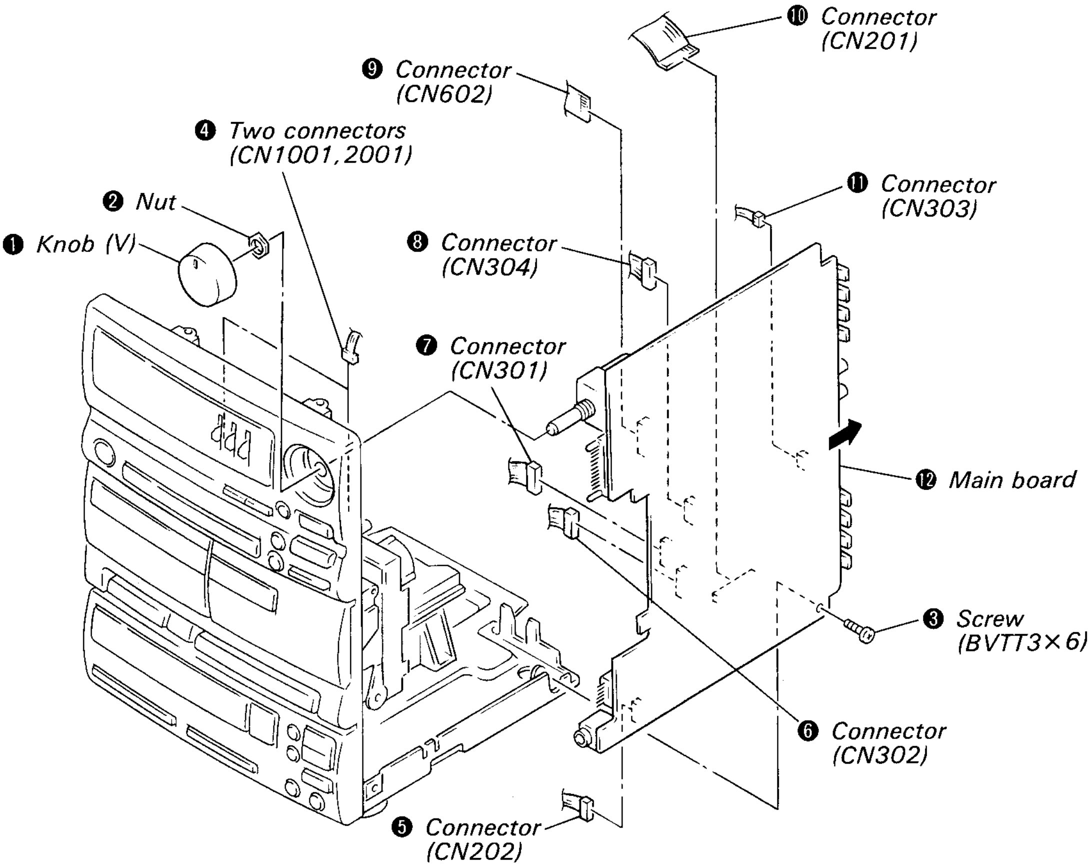
(HCD-H450 model)


❹ Screw (BVTP3×10)
❶ Two screws (BVTP3×10)
❽ Telescopic antenna
❷ Two screws (BVTP3×10)
❼ FM antenna (G,IT model)
❻ Screw (BVTT3×12)
❺ Four screws (BVTP3×10)
❾ Case
❸ Two screws (BVTP3×10)

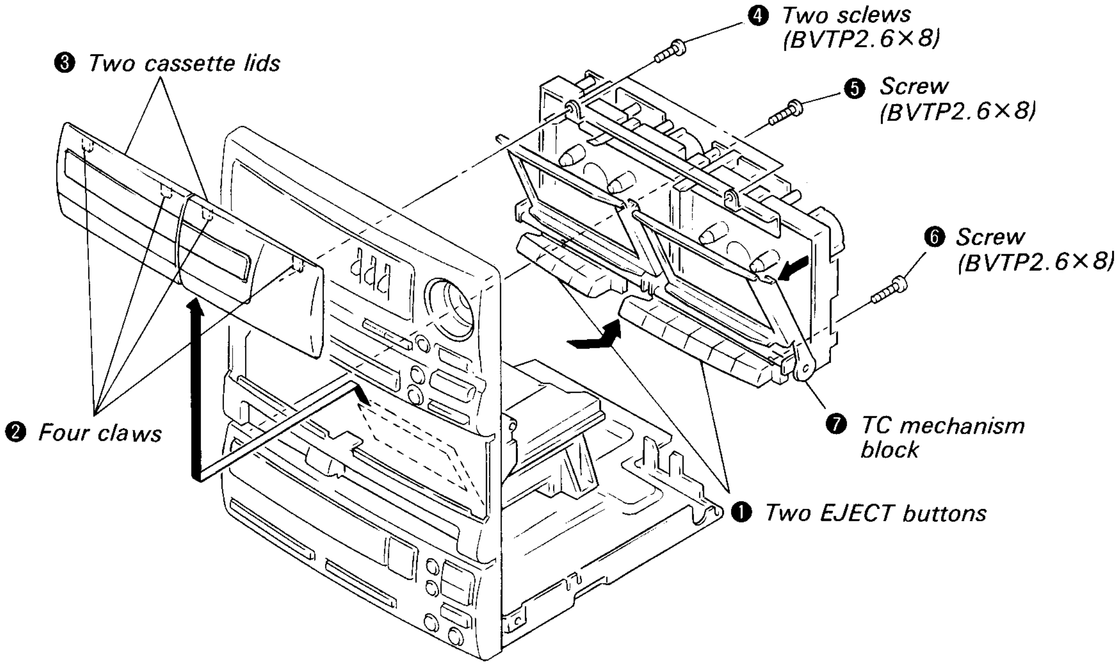
3-2. POWER BLOCK REMOVAL


❷ Two screws (BVTT3×6)
❼ Connector (CN903)
❶ Two screws (BVTT3×6)
❹ Screw (BVTT3×6)
❻ Connector (CN900)
❺ Connector (CN902)
❽ Power transformer block
❸ Screw (BVTT3×6)

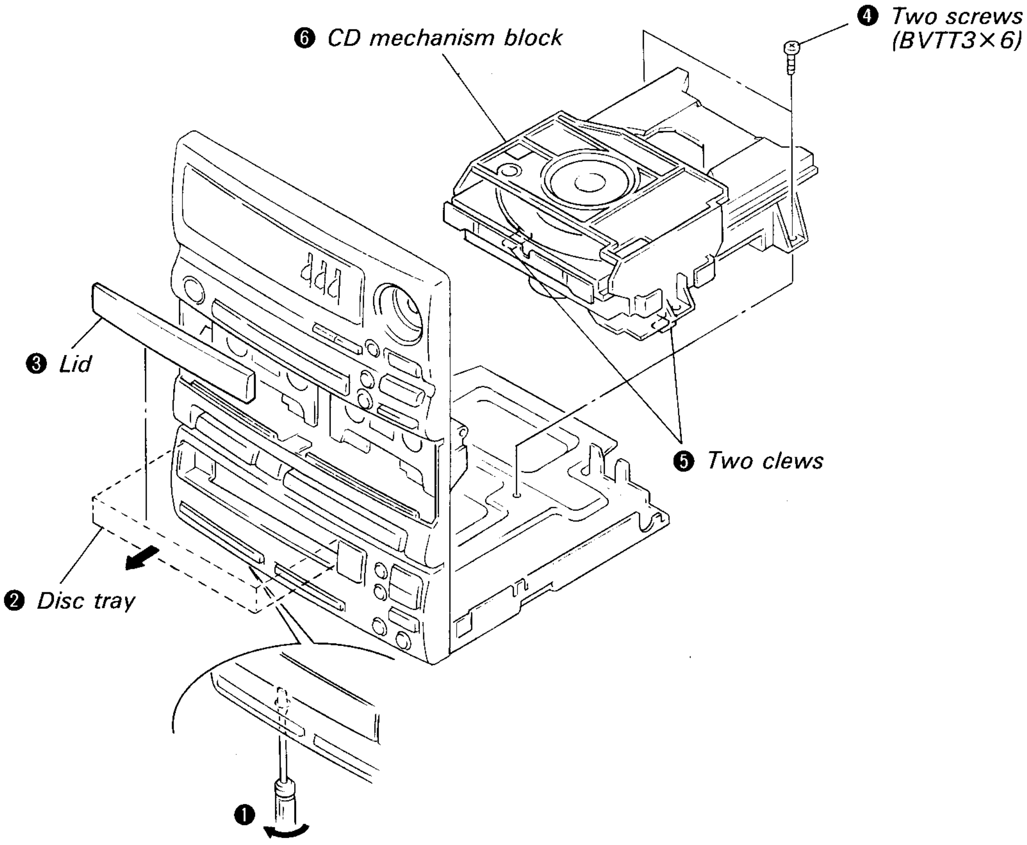
3-3. MAIN BOARD REMOVAL


❿ Connector (CN201)
❾ Connector (CN602)
❹ Two connectors (CN1001,2001)
❷ Nut
❶ Knob (V)
⓫ Connector (CN303)
❽ Connector (CN304)
❼ Connector (CN301)
⓬ Main board
❸ Screw (BVTT3×6)
❻ Connector (CN302)
❺ Connector (CN202)

3-4. TC MECHANISM BLOCK REMOVAL


❹ Two sclews (BVTP2.6×8)
❸ Two cassette lids
❺ Screw (BVTP2.6×8)
❻ Screw (BVTP2.6×8)
❷ Four claws
❼ TC mechanism block
❶ Two EJECT buttons

3-5. CD MECHANISM BLOCK REMOVAL


❻ CD mechanism block
❹ Two screws (BVTT3×6)
❸ Lid
❺ Two clews
❷ Disc tray
❶

SECTION 4
DIAGRAMS

4-1. IC PIN DESCRIPTIONS

• IC351 TMP87CH46N-4067

Pin No.	Pin Name	I/O	Pin Description
1	DATA	O	Command data to CXD2515Q.
2	CLK	O	Command clock to CXD2515Q.
3	PLAY	O	LED of PLAY.
4	SUBQ	I	To Q code output of CXD2515Q.
5	SQCLK	O	Clock of on read Q code.
6	PRGL	—	Not used.
7	XLT	O	For CXD2515Q latch.
8	SCOR	I	Large frame syncronization signal. 75Hz.
9	PAUSE	O	LED of PAUSE.
10	ICSW	O	CD power supply control pin. OFF : L, ON : H.
11	AMUTE	O	Mute. To CXD2515Q.
12	SCLK	O	Servo mode for read clock.
13	LDON	O	Laser diode ON/OFF.
14	—	—	Not used.
15	—	—	Not used.
16	SENSE	I	SENSE of CXD2515Q.
17	TEST	I	Connect to GND.
18	RESET	I	Reset pin of microcomputer.
19	X1	I	Oscillator connecting input pin. 8MHz.
20	X2	O	Oscillator connecting output pin. 8MHz.
21	GND	—	GND
22	VAREF	I	Reference voltage of A/D change.
23	KEYIN0	I	A/D key input
24	KEYIN1	I	A/D key input
25	KEYIN2	I	A/D key input
26	DPCLK	O	Display clock
27	DPDAT0	O	Display data
28	DPDAT1	O	Display data
29	DPDAT2	O	Display data
30	DPDAT3	O	Display data
31	EMPH	O	Emphasis control
32	KEYREQ	I	Key request
33	AUBIN	I	AU BUS input pin
34	AUBOUT	O	AU BUS output pin
35	LODOUT	O	Tray out
36	LODIN	O	Tray in
37	OUTSW	I	Tray out switch
38	INSW	I	Tray in switch
39	A-FUNC	I	Auto function ON/OFF select
40	ADJ	I	CD test mode pin (ADJ). Normally, 5V pull up.
41	AFADJ	I	CD test mode pin (AFADJ). Normally, 5V pull up.
42	+5V	—	+5V power supply pin

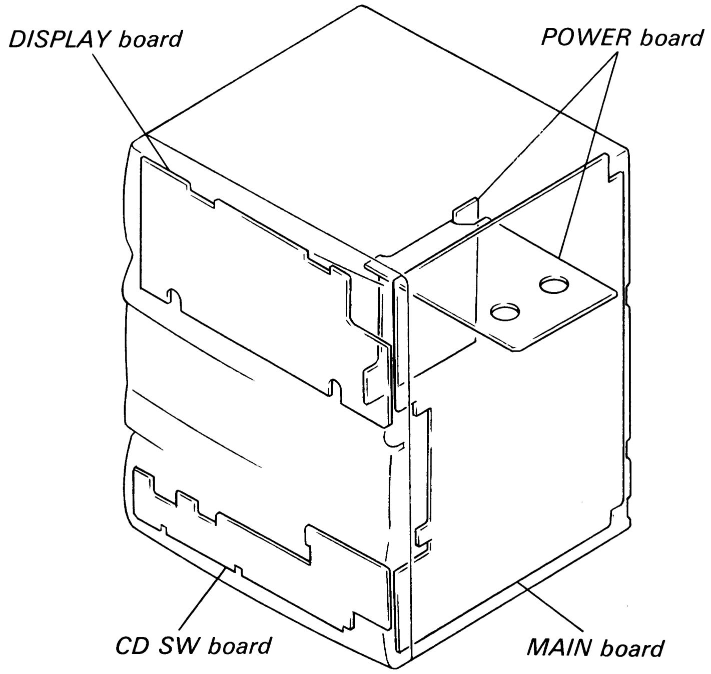
4-2. CIR

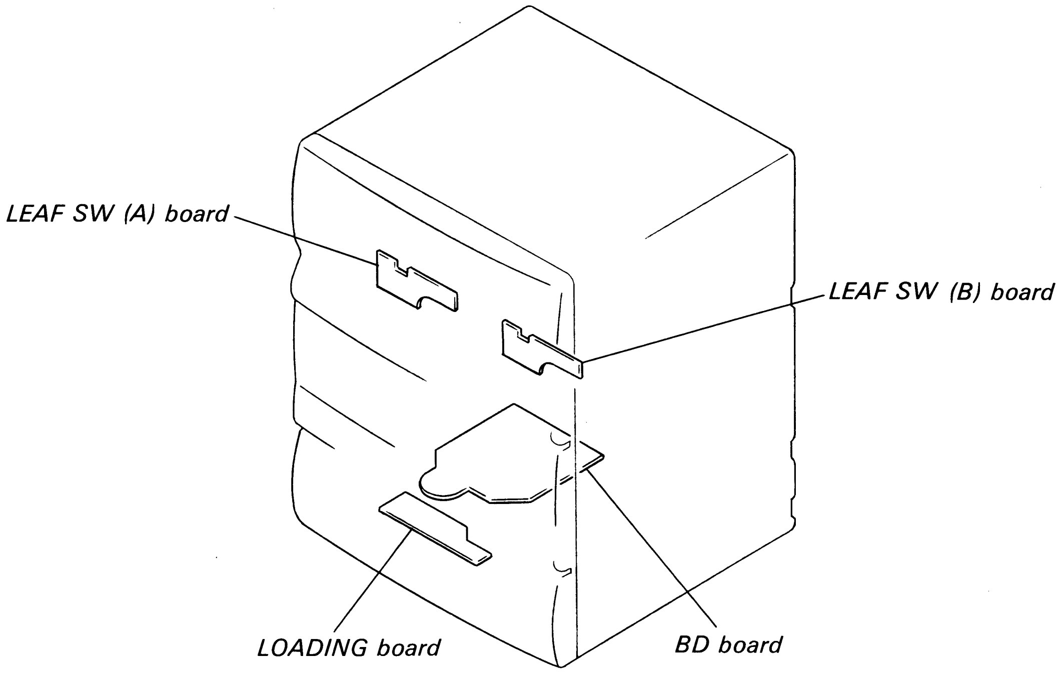
• IC501 μPD78042GF-053-3B9

Pin No.	Pin Name	I/O	Pin Description
1	7G	O	FL tube digit output
2	6G	O	FL tube digit output
3	5G	O	FL tube digit output
4	4G	O	FL tube digit output
5	3G	O	FL tube digit output
6	2G	O	FL tube digit output
7	1G	O	FL tube digit output
8	VDD	—	Microcomputer power (5V)
9	CL	O	Serial clock output to LC7218 (PLL IC).
10	SO/IF COUNT NG	O	Serial data output to LC7218 (PLL IC).
11	SI	I	Serial data input from LC7218 (PLL IC).
12	CE/TIMER CLOCK	I	Chip enable input from LC7218 (PLL IC).
13	TUNED IN	I	Modulation signal from tuner block. (L···Field)
14	STEREO IN	I	Stereo signal from tuner block. (L···FM STEREO received)
15	MUTING	O	Audio mute (L : Mute)
16	AUX. OUT	—	Not used.
17	RESET	—	Microcomputer reset pin
18	FUNCTION A	O	Function control
19	FUNCTION B	O	Function control
20	AVSS	—	A/D GND for key input.
21	DISPLAY. DATA. 3	I	CD display data bit 3
22	DISPLAY. DATA. 2	I	CD display data bit 2
23	DISPLAY. DATA. 1	I	CD display data bit 1
24	DISPLAY. DATA. 0	I	CD display data bit 0
25	AUB. OUT	O	AU BUS output
26	POWER ON/OFF	O	Power on/off
27	KEY IN1	I	Key input (A/D change line 1)
28	KEY IN2	I	Key input (A/D change line 2)
29	AVDD	—	A/D power for key input (5V)
30	AVREF	—	A/D reference voltage (5V)
31	CD. BUSY	I	At H, CD is Active. (At H, tuner is fundamentally not operated.)
32	—	—	Not used.
33	GND	—	Microcomputer GND
34	X1	—	Crystal connection pin for Main•clock oscillator.
35	X2	—	Crystal connection pin for Main•clock oscillator.
36	POWER. MUTE	—	Not used.
37	TAPE. LED	O	Tape function LED
38	CD. LED	O	CD function LED
39	TUNER. LED	O	Tuner function LED
40	PHONO/VIDEO. LED	O	PHONO/VIDEO function LED
41	DBFB	—	DBFB ON/OFF
42	K-PON	—	KARAOKE-PON ON/OFF
43	K-PON• LED	—	KARAOKE-PON LED
44	HOLD	I	Power cut detection pin (Normally : H, AC no connect : L)
45	CD. CLOCK	I	CD display data clock
46	SIRCS IN	I	SIRCS input
47	AUB. IN	I	AU BUS input
48	—	—	Connect to GND.
49	FUNCTION. C	—	Not used.
50	VOL. DOWN	O	Volume control (VOL DOWN)
51	VOL. UP	O	Volume control (VOL UP)
52	VDD	—	Microcomputer power (5V)
53	—	—	Not used.
54	DIODE. IN2	I	Distination•model discrimination input
55	DIODE. IN1	I	Distination•model discrimination input
56	S20	—	Not used.
57	S19	O	Distination• model discrimination output
58	S18	O	Distination• model discrimination output
59	S17	—	Not used.
60	S16	O	Distination• model discrimination output
61	S15	O	Distination• model discrimination output
62	S14	—	Not used.
63	—	—	Not used.
64	S0	O	FL tube segment output
65	S1	O	FL tube segment output
66	S2	O	FL tube segment output
67	S3	O	FL tube segment output
68	S4	O	FL tube segment output
69	S5	O	FL tube segment output
70	S6	O	FL tube segment output
71	V. LOAD	—	Minus voltage for FL tube.
72	S7	O	FL tube segment output
73	S8	O	FL tube segment output
74	S9	O	FL tube segment output
75	S10	O	FL tube segment output
76	S11	O	FL tube segment output
77	S12	O	FL tube segment output
78	—	O	Not used.
79	9G	O	FL tube digit output
80	8G	O	FL tube digit output

LEAF S

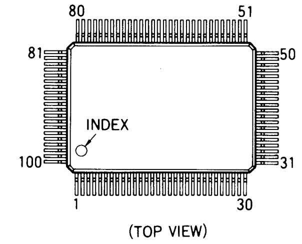
4-2. CIRCUIT BOARD LOCATION


DISPLAY board
POWER board
CD SW board
MAIN board

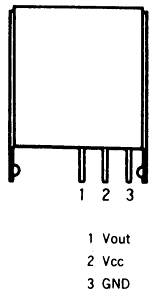

LEAF SW (A) board
LEAF SW (B) board
LOADING board
BD board

4-3. SEMICONDUCTOR LEAD LAYOUTS

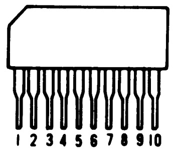
CXD2515Q


80
51
81
50
INDEX
100
31
1
30
(TOP VIEW)

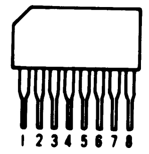
GP1U50XB


1 2 3
1 Vout
2 Vcc
3 GND

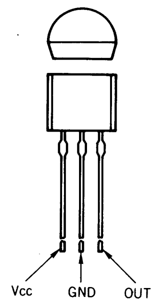
LB1641


1 2 3 4 5 6 7 8 9 10

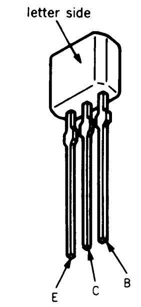
M5218AL
M5230L-A
UPC1330HA



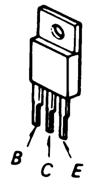
PST600C-T
PST600G-T



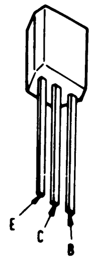
2SA1175-HFE
2SC2785-HFE


letter side
E
C
B

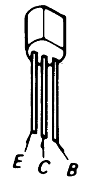
2SB1094-LK
2SD2012



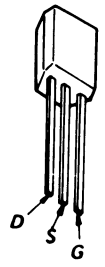
2SC2669-OY
2SC3622A-LK
DTA114ES
DTA144ES
DTC114ES
DTC144ES



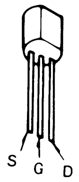
2SC3112-B
2SC945-P



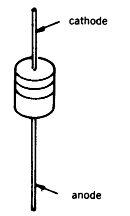
2SK161-YGR



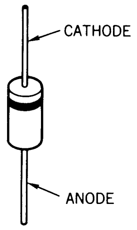
2SK246-GR3



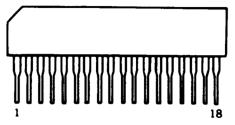
11ES2
HZS30-2L
HZS6A1L
HZS6C3L
HZS7C2L
UZ-4.7BSB


cathode
anode

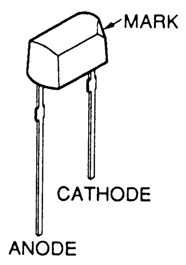
1N4148M
UZP-6.2B


CATHODE
ANODE

RBA-402



SEL5221S


MARK
CATHODE
ANODE

4-4. PRINTED WIRING BOARDS —MAIN/POWER Section—

● See page 13, 14 for Circuit Boards Location and Semiconductor Lead Layouts.

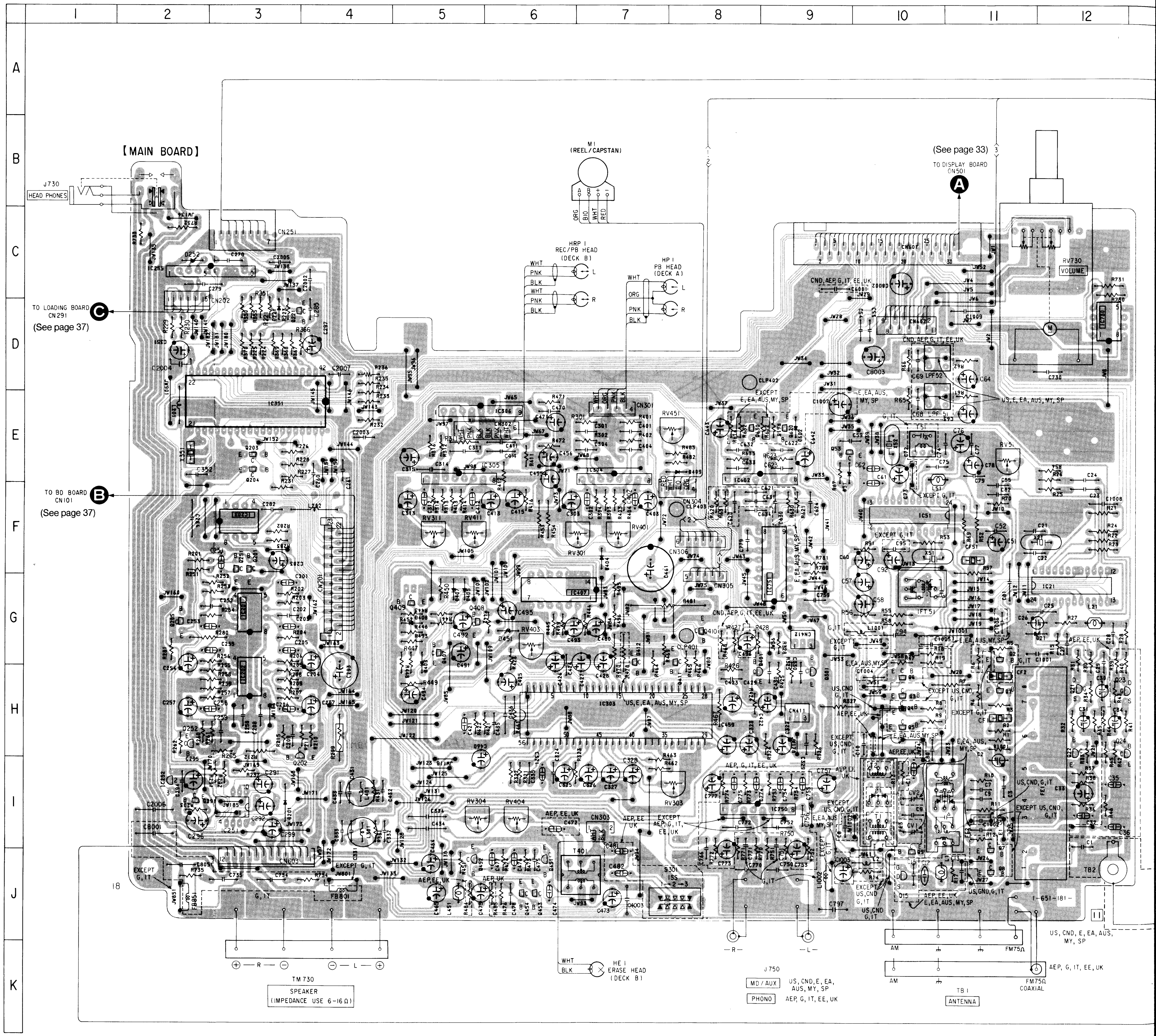
• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D1	I - 10	IC851	G - 19
D21	G - 12	IC901	H - 18
D51	E - 9		
D201	I - 3	Q1	H - 11
D221	D - 3	Q2	G - 11
D252	C - 2	Q3	H - 10
D403	H - 5	Q4	H - 10
D404	F - 7	Q5	H - 10
D405	G - 5	Q6	H - 10
D407	G - 5	Q7	J - 11
D408	G - 5	Q8	J - 11
D409	E - 8	Q9	J - 10
D451	G - 7	Q15	J - 10
D602	E - 9	Q21	H - 12
D801	I - 21	Q22	H - 12
D802	I - 21	Q23	H - 12
D901	G - 18	Q24	H - 12
D902	G - 17	Q53	E - 9
D903	H - 22	Q201	F - 3
D904	I - 17	Q202	I - 3
D905	I - 18	Q203	E - 3
D906	G - 23	Q204	E - 3
		Q205	G - 2
IC21	G - 12	Q221	D - 3
IC51	F - 10	Q251	F - 3
IC201	G - 3	Q252	H - 2
IC202	H - 3	Q291	I - 2
IC203	F - 3	Q301	H - 9
IC251	I - 3	Q371	D - 19
IC252	I - 2	Q372	D - 19
IC255	C - 2	Q401	H - 8
IC303	H - 7	Q407	G - 5
IC304	E - 7	Q408	G - 5
IC305	E - 5	Q409	G - 5
IC306	E - 5	Q410	G - 8
IC351	E - 3	Q411	G - 8
IC407	G - 6	Q412	G - 7
IC602	E - 8	Q451	J - 6
IC730	D - 12	Q452	J - 5
IC750	I - 8	Q453	J - 6
IC751	F - 9	Q454	J - 6
IC801	G - 20		

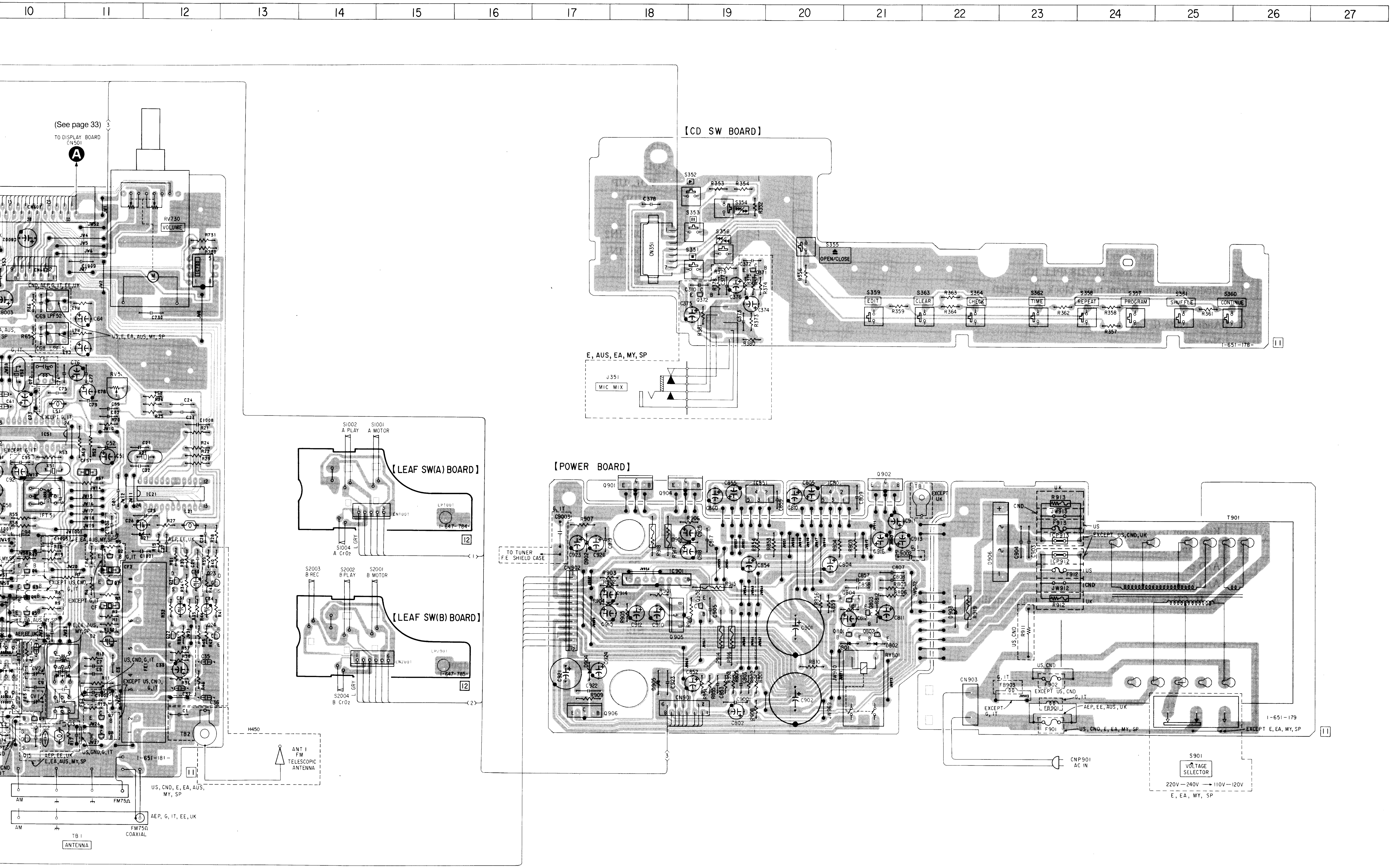
Note:

- ○—— : parts extracted from the component side.

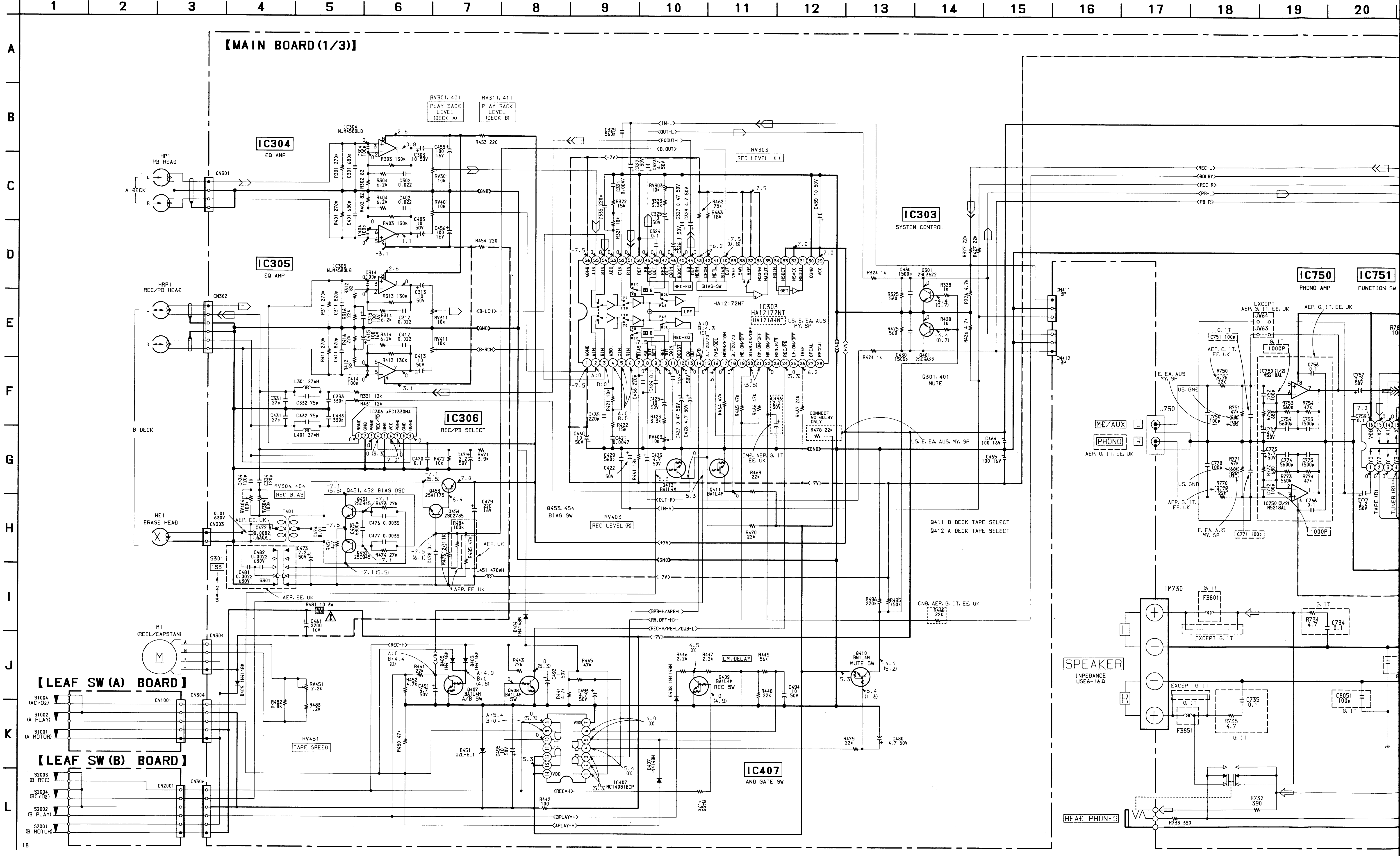
CND : Canadian	EE : East European
G : German	MY : Malaysia
IT : Italian	SP : Singapore
AUS : Australian	
EA : Saudi Arabia	

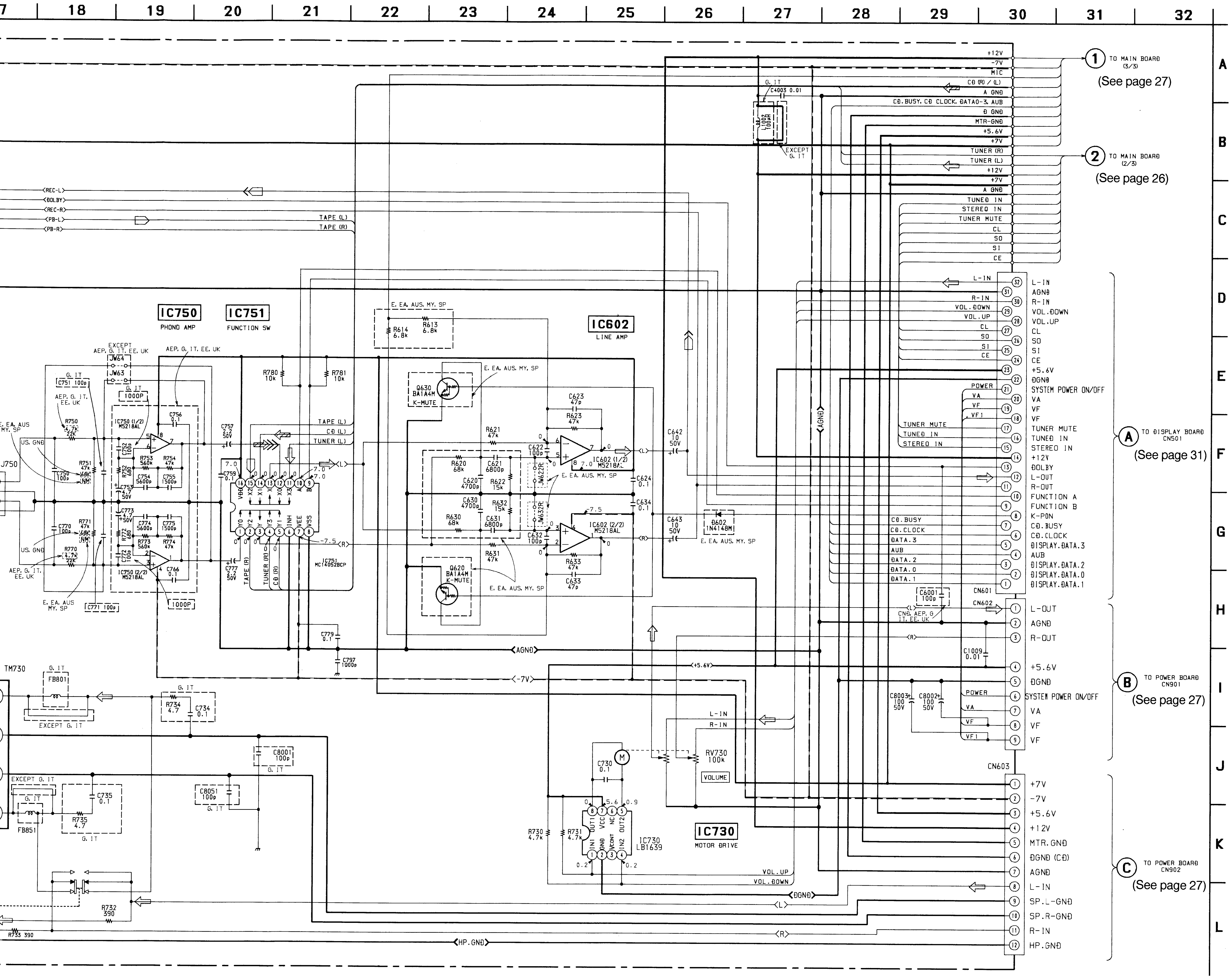

1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I J K
【MAIN BOARD】
J730
HEAD PHONES
TO LOADING BOARD CN291
(See page 37)
TO BD BOARD CN101
(See page 37)
M1 (REEL/CAPSTAN)
HRP1 REC/PB HEAD (DECK B)
HP1 PB HEAD (DECK A)
(See page 33)
TO DISPLAY BOARD CN501
RV730 VOLUME
IC351
IC303
IC21
IC51
TM730
SPEAKER (IMPEDANCE USE 6-16Ω)
HE1 ERASE HEAD (DECK B)
J750
MD/AUX US, CND, E, EA, AUS, MY, SP
PHONO AEP, G, IT, EE, UK
AM
FM75Ω
FM75Ω COAXIAL
TB1 ANTENNA
US, CND, E, EA, AUS, MY, SP
AEP, G, IT, EE, UK

Semiconductor Lead Layouts.


10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
(See page 33)
TO DISPLAY BOARD CN501
A
RV730 VOLUME
TB2
ANT 1 FM TELESCOPIC ANTENNA
H450
1-651-181-
11
US, CND, E, EA, AUS, MY, SP
AEP, G, IT, EE, UK
AM
FM75Ω
FM75Ω COAXIAL
TB1 ANTENNA
【CD SW BOARD】
S352
S353
S354
S351
S356
S355 OPEN/CLOSE
CN351
C378
S359 EDIT
S363 CLEAR
S364 CHECK
S362 TIME
S358 REPEAT
S357 PROGRAM
S361 SHUFFLE
S360 CONTINUE
1-651-178-
11
E, AUS, EA, MY, SP
J351 MIC MIX
S1002 A PLAY
S1001 A MOTOR
【LEAF SW(A) BOARD】
CN1001
LPT001
1-647-784-
12
S1004 A CrO2
S2003 B REC
S2002 B PLAY
S2001 B MOTOR
【LEAF SW(B) BOARD】
CN2001
LPT001
1-647-785-
12
S2004 B CrO2
GRY
L.GRY
【POWER BOARD】
Q901
Q904
Q902
Q906
TB1 EXCEPT UK
TO TUNER F.E. SHIELD CASE
CN902
CN901
CN903
IC901
C901
C902
RY801
D906
UK
CND
US
EXCEPT US, CND, UK
T901
US, CND
G, IT
EXCEPT US, CND
EXCEPT G, IT
AEP, EE, AUS, UK
US, CND, E, EA, MY, SP
EXCEPT E, EA, MY, SP
1-651-179
11
CNP901 AC IN
S901 VOLTAGE SELECTOR
220V—240V → 110V—120V
E, EA, MY, SP

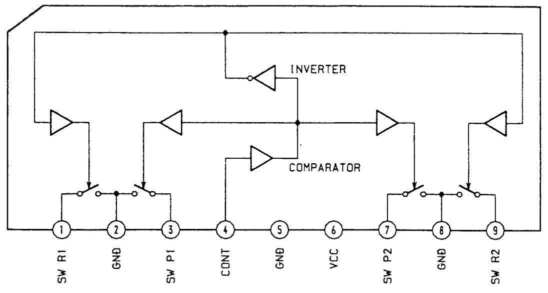
4-5. SCHEMATIC DIAGRAM –TC Section–


【MAIN BOARD (1/3)】
IC304
EQ AMP
IC304 NJM4580LD
IC305
EQ AMP
IC305 NJM4580LD
IC306
REC/PB SELECT
IC306 μPC1330HA
IC303
SYSTEM CONTROL
IC303 HA12172NT
HA12184NT US, E, EA, AUS MY, SP
IC407
AND GATE SW
IC407 MC14081BCP
IC750
PHONO AMP
IC751
FUNCTION SW
HP1 PB HEAD
A DECK
HRP1 REC/PB HEAD
B DECK
HE1 ERASE HEAD
M1 (REEL/CAPSTAN)
【LEAF SW (A) BOARD】
S1004 (AC rOz)
S1002 (A PLAY)
S1001 (A MOTOR)
【LEAF SW (B) BOARD】
S2003 (B REC)
S2004 (BC rOz)
S2002 (B PLAY)
S2001 (B MOTOR)
RV301, 401 PLAY BACK LEVEL (DECK A)
RV311, 411 PLAY BACK LEVEL (DECK B)
RV303 REC LEVEL (L)
RV403 REC LEVEL (R)
RV304, 404 REC BIAS
RV451 TAPE SPEED
Q451, 452 BIAS OSC
Q453, 454 BIAS SW
Q301, 401 MUTE
Q411 B DECK TAPE SELECT
Q412 A DECK TAPE SELECT
Q407 A/B SW
Q409 REC SW
Q410 MUTE SW
LM. DELAY
CONNECT NO DOLBY ONLY
MD/AUX
PHONO
J750
TM730
SPEAKER
INPEDANCE USE6-16Ω
HEAD PHONES
CN301
CN302
CN303
CN304
CN306
CN411 3P
CN412 3P
S301

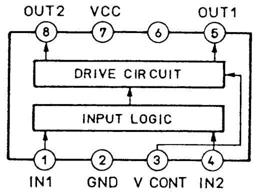

18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
A
B
C
D
E
F
G
H
I
J
K
L
+12V
-7V
MIC
CD (R) / (L)
A GND
CD.BUSY. CD CLOCK. DATA0-3. AUB
D GND
MTR-GND
+5.6V
+7V
TUNER (R)
TUNER (L)
+12V
+7V
A GND
TUNED IN
STEREO IN
TUNER MUTE
CL
SO
SI
CE
① TO MAIN BOARD (3/3)
(See page 27)
② TO MAIN BOARD (2/3)
(See page 26)
IC750 PHONO AMP
IC751 FUNCTION SW
IC602 LINE AMP
IC730 MOTOR DRIVE
IC730 LB1639
IC751 MC14052BCP
IC750 (1/2) M5218AL
IC750 (2/2) M5218AL
IC602 (1/2) M5218AL
IC602 (2/2) M5218AL
Q630 BA1A4M K-MUTE
Q620 BA1A4M K-MUTE
D602 1N4148M
RV730 100k VOLUME
TAPE (L)
TAPE (R)
CD (L)
TUNER (L)
<REC-L>
<DOLBY>
<REC-R>
<PB-L>
<PB-R>
<AGND>
<-7V>
<+5.6V>
<DGND>
<HP.GND>
VOL.UP
VOL.DOWN
L-IN
R-IN
E. EA. AUS. MY. SP
AEP. G. IT. EE. UK
EXCEPT AEP. G. IT. EE. UK
EXCEPT G. IT
G. IT
CN601
L-IN
AGND
R-IN
VOL.DOWN
VOL.UP
CL
SO
SI
CE
+5.6V
DGND
SYSTEM POWER ON/OFF
VA
VF
VF
TUNER MUTE
TUNED IN
STEREO IN
+12V
DOLBY
L-OUT
R-OUT
FUNCTION A
FUNCTION B
K-PON
CD.BUSY
CD.CLOCK
DISPLAY.DATA.3
AUB
DISPLAY.DATA.2
DISPLAY.DATA.0
DISPLAY.DATA.1
Ⓐ TO DISPLAY BOARD CN501
(See page 31)
CN602
L-OUT
AGND
R-OUT
+5.6V
DGND
SYSTEM POWER ON/OFF
VA
VF
VF
Ⓑ TO POWER BOARD CN901
(See page 27)
CN603
+7V
-7V
+5.6V
+12V
MTR.GND
DGND (CD)
AGND
L-IN
SP.L-GND
SP.R-GND
R-IN
HP.GND
Ⓒ TO POWER BOARD CN902
(See page 27)
TM730
FB801
FB851

- **IC Block Diagrams**

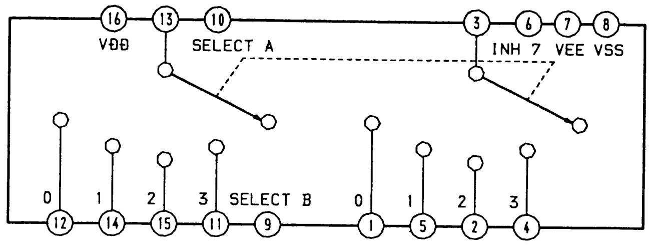
IC306 μPC1330HA


INVERTER
COMPARATOR
1
2
3
4
5
6
7
8
9
SW R1
GND
SW P1
CONT
GND
VCC
SW P2
GND
SW R2

IC730 LB1639


OUT2
VCC
OUT1
8
7
6
5
DRIVE CIRCUIT
INPUT LOGIC
1
2
3
4
IN1
GND
V CONT
IN2

IC751 MC14052BCP


16
13
10
VDD
SELECT A
3
6
7
8
INH
7
VEE
VSS
0
1
2
3
SELECT B
0
1
2
3
12
14
15
11
9
1
5
2
4

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $^1/_4$ W or less unless otherwise specified.
- ▭ : nonflammable resistor.

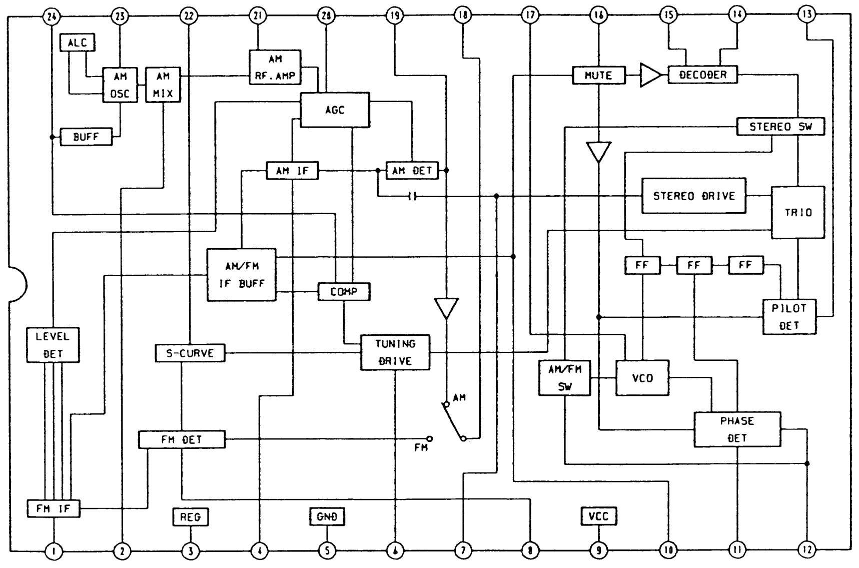
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- ━ : B+ Line
- ━ ━ : B– Line
- ☐ : adjustment for repair.
- Voltage is dc with respect to ground under no-signal (detuned) conditions.
  no mark : PLAY
  ( ) : REC
  A : A DECK
  B : B DECK
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
  ⇨ : PB (DECK A)
  ⇨ : PB (DECK B)
  ⇨ : REC (DECK B)
  ⇨ : CD
  ⇨ : PHONO/VIDEO

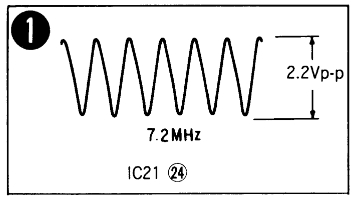
CND : Canadian	EE : East European
G : German	MY : Malaysia
IT : Italian	SP : Singapore
AUS : Australian	
EA : Saudi Arabia	

● IC Block Diagram

IC51 LA1831


ALC
AM OSC
AM MIX
AM RF.AMP
AGC
BUFF
AM IF
AM DET
MUTE
DECODER
STEREO SW
STEREO DRIVE
TRIG
AM/FM IF BUFF
COMP
FF
FF
FF
PILOT DET
LEVEL DET
S-CURVE
TUNING DRIVE
AM/FM SW
VCO
PHASE DET
FM DET
AM
FM
FM IF
REG
GND
VCC
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

● Waveforms



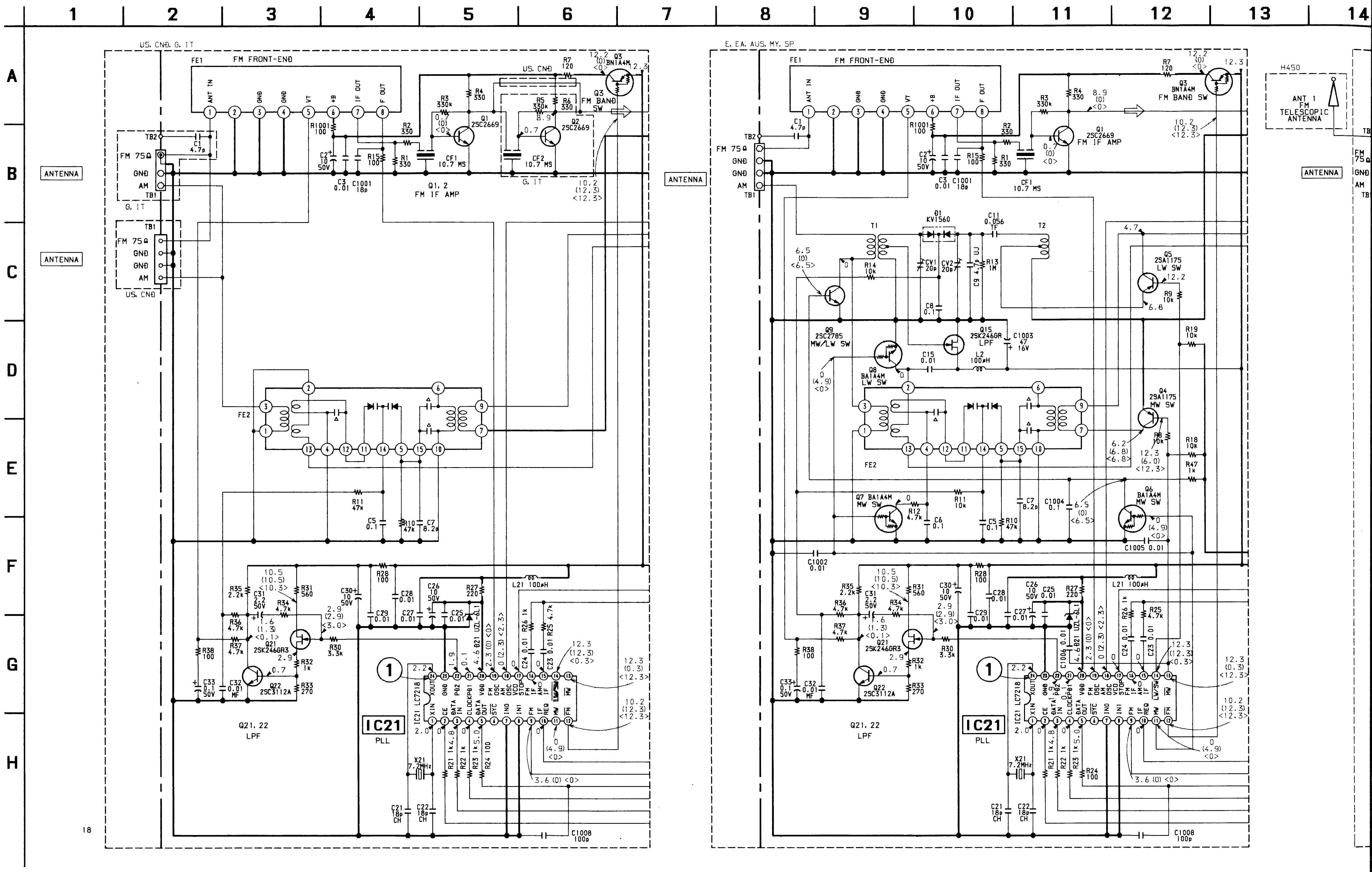
Note:

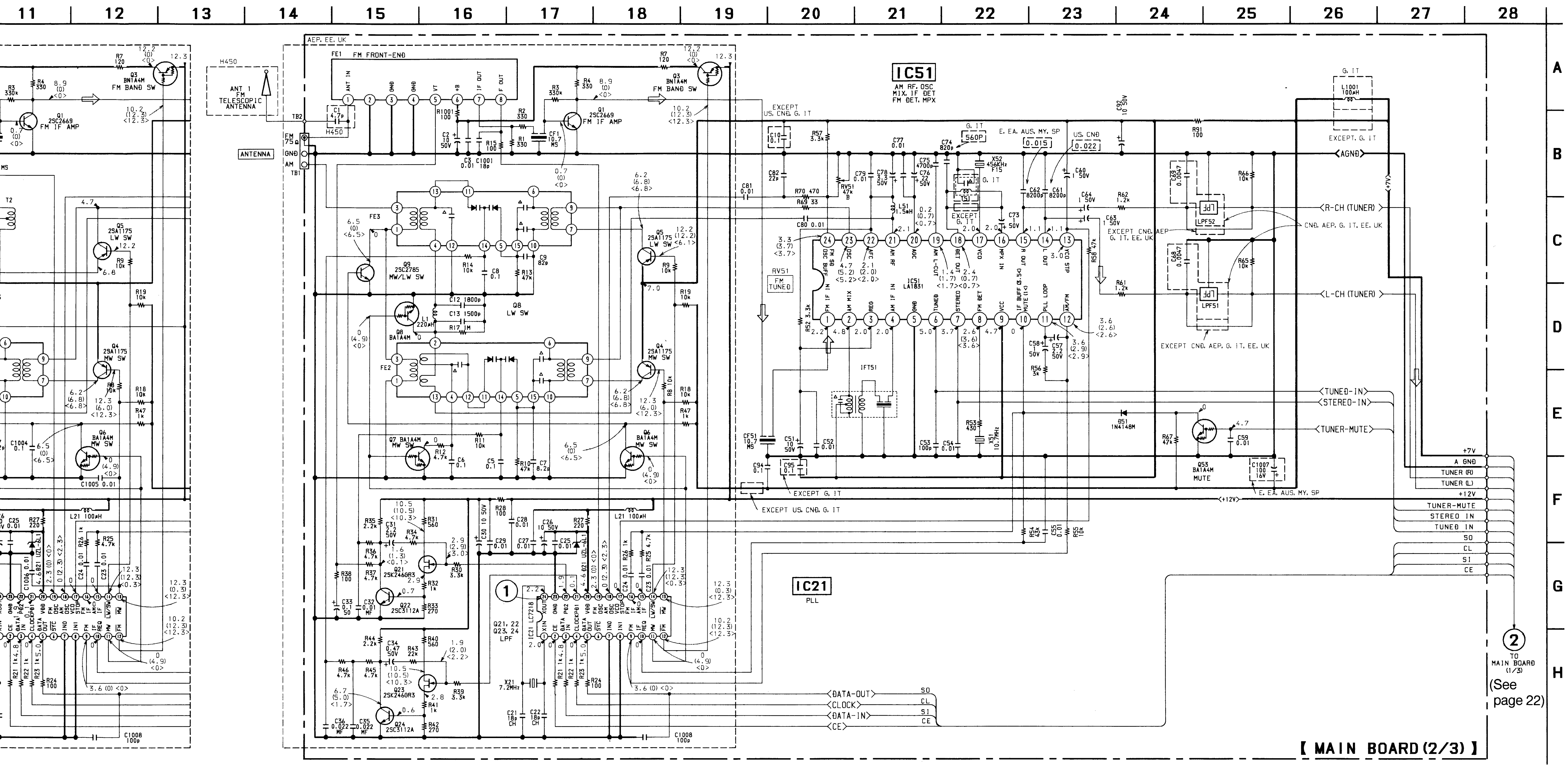
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $^1/_4$W or less unless otherwise specified.
- △ : internal component.
- ▬ : B+ Line
- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ): MW
  < >: SW/LW
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM

CND : Canadian
G : German
IT : Italian
AUS : Australian
EA : Saudi Arabia

EE : East European
MY : Malaysia
SP : Singapore

4-6. SCHEMATIC DIAGRAM —TUNER Section—

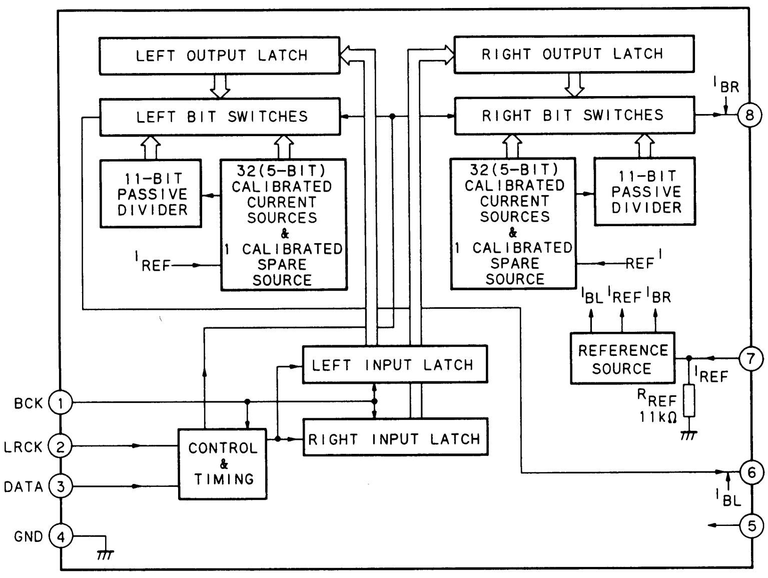

1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
US, CND, G, IT
E, EA, AUS, MY, SP
FE1 FM FRONT-END
ANT IN
GND
VT
+B
IF OUT
ANTENNA
TB2
FM 75Ω
GND
AM
TB1
G, IT
US, CND
Q1, 2 FM IF AMP
CF1 10.7 MS
CF2 10.7 MS
Q3 BN1A4M FM BAND SW
Q1 2SC2669 FM IF AMP
H450
ANT 1 FM TELESCOPIC ANTENNA
T1
T2
D1 KV1560
Q9 2SC2785 MW/LW SW
Q8 BA1A4M LW SW
Q15 2SK246GR LPF
Q5 2SA1175 LW SW
Q4 2SA1175 MW SW
Q6 BA1A4M MW SW
Q7 BA1A4M MW SW
FE2
L2 100μH
L21 100μH
Q21 2SK246GR3
Q22 2SC3112A
Q21, 22 LPF
IC21 PLL
IC21 LC7218
X21 7.2MHz
C1008 100p
C1005 0.01
C1002 0.01
①
18



11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
A
B
C
D
E
F
G
H
AEP, EE, UK
FE1 FM FRONT-END
H450
ANT 1 FM TELESCOPIC ANTENNA
ANTENNA
TB1
TB2
FM 75Ω
GND
AM
Q1 2SC2669 FM IF AMP
Q3 BN1A4M FM BAND SW
Q5 2SA1175 LW SW
Q4 2SA1175 MW SW
Q6 BA1A4M MW SW
Q7 BA1A4M MW SW
Q8 BA1A4M LW SW
Q9 2SC2785 MW/LW SW
FE2
FE3
CF1 10.7 MS
L21 100μH
Q21 2SK2460R3
Q22 2SC3112A
Q23 2SK2460R3
Q24 2SC3112A
Q21, 22 Q23, 24 LPF
IC21 LC7218
X21 7.2MHz
C1008 100p
IC51
AM RF, OSC MIX, IF DET FM DET, MPX
IC51 LA1831
IC21
PLL
RV51 FM TUNED
IFT51
CF51 10.7 MS
X51 10.7MHz
X52 456kHz F15
EXCEPT US, CND, G, IT
EXCEPT G, IT
G, IT
E, EA, AUS, MY, SP
US, CND
D51 1N4148M
Q53 BA1A4M MUTE
L1001 100μH
EXCEPT, G, IT
LPF52
LPF51
EXCEPT CND, AEP, G, IT, EE, UK
CND, AEP, G, IT, EE, UK
AGND
R-CH (TUNER)
L-CH (TUNER)
TUNED-IN
STEREO-IN
TUNER-MUTE
DATA-OUT
CLOCK
DATA-IN
CE
SO
CL
SI
CE
+7V
A GND
TUNER (R)
TUNER (L)
+12V
TUNER-MUTE
STEREO IN
TUNED IN
SO
CL
SI
CE
①
②
TO MAIN BOARD (1/3)
(See page 22)
【 MAIN BOARD (2/3) 】

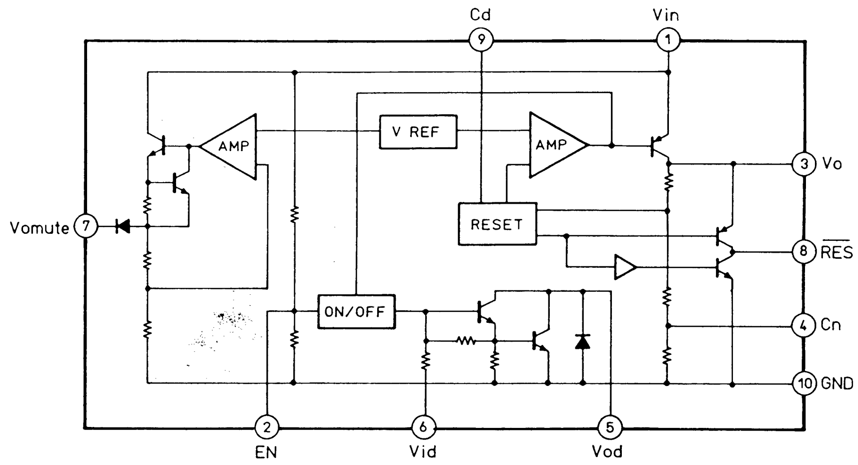
- **IC Block Diagrams**

IC203 TDA1545P



LEFT OUTPUT LATCH
RIGHT OUTPUT LATCH
LEFT BIT SWITCHES
RIGHT BIT SWITCHES
11-BIT PASSIVE DIVIDER
32(5-BIT) CALIBRATED CURRENT SOURCES & 1 CALIBRATED SPARE SOURCE
REFERENCE SOURCE
LEFT INPUT LATCH
RIGHT INPUT LATCH
CONTROL & TIMING
BCK 1
LRCK 2
DATA 3
GND 4
5 VDD
6 IOL
7 VREF
8 IOR
IBR
IREF
IBL
RREF 11kΩ

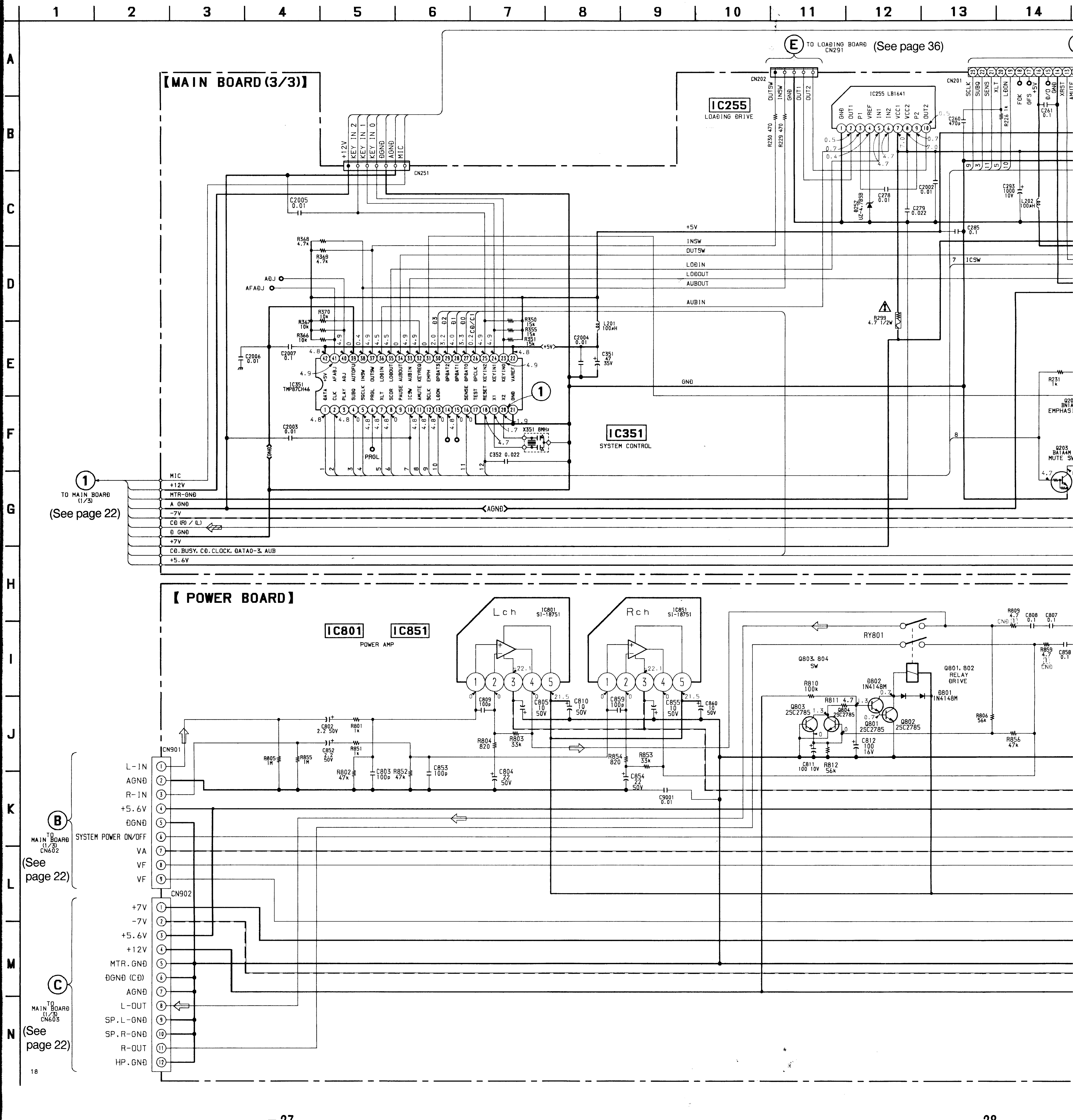
IC251 LA5601



Cd 9
Vin 1
AMP
V REF
AMP
RESET
ON/OFF
Vomute 7
3 Vo
8 RES
4 Cn
10 GND
2 EN
6 Vid
5 Vod

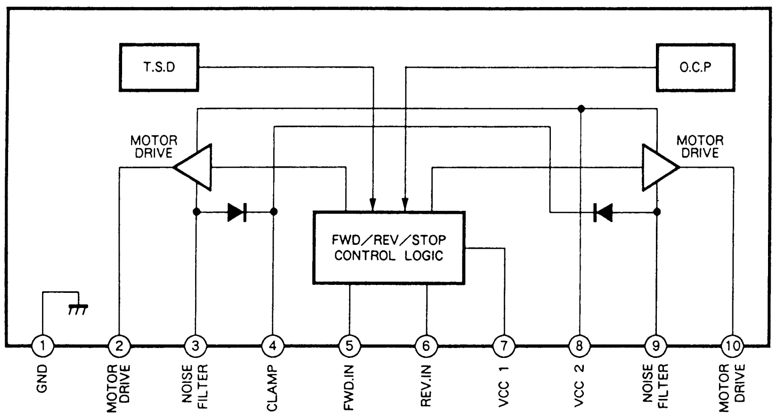
IC

4-7. SCHEMATIC DIAGRAM –CD CONTROL/POWER Section–

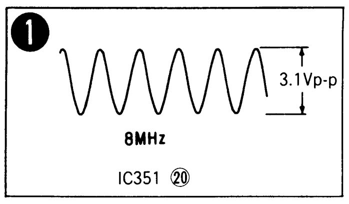


[MAIN BOARD(3/3)]
IC255 LOADING DRIVE
IC255 LB1641
E TO LOADING BOARD CN291 (See page 36)
CN202
CN201
CN251
IC351 TMP87CH46
IC351 SYSTEM CONTROL
X351 8MHz
ADJ
AFADJ
PRGL
1 TO MAIN BOARD (1/3) (See page 22)
MIC
+12V
MTR-GND
A GND
-7V
CD (R) / (L)
D GND
+7V
CD.BUSY, CD.CLOCK, DATA0-3, AUB
+5.6V
+5V
INSW
OUTSW
LODIN
LODOUT
AUBOUT
AUBIN
GND
AGND
ICSW
[POWER BOARD]
IC801 IC851 POWER AMP
Lch IC801 SI-18751
Rch IC851 SI-18751
RY801
Q803, 804 SW
Q801, 802 RELAY DRIVE
CN901
L-IN
AGND
R-IN
+5.6V
DGND
SYSTEM POWER ON/OFF
VA
VF
VF
B TO MAIN BOARD (1/3) CN602 (See page 22)
CN902
+7V
-7V
+5.6V
+12V
MTR.GND
DGND (CD)
AGND
L-OUT
SP.L-GND
SP.R-GND
R-OUT
HP.GND
C TO MAIN BOARD (1/3) CN603 (See page 22)
Q202 BN1A EMPHASIS
Q203 BA1A4M MUTE SW

IC255 LB1641

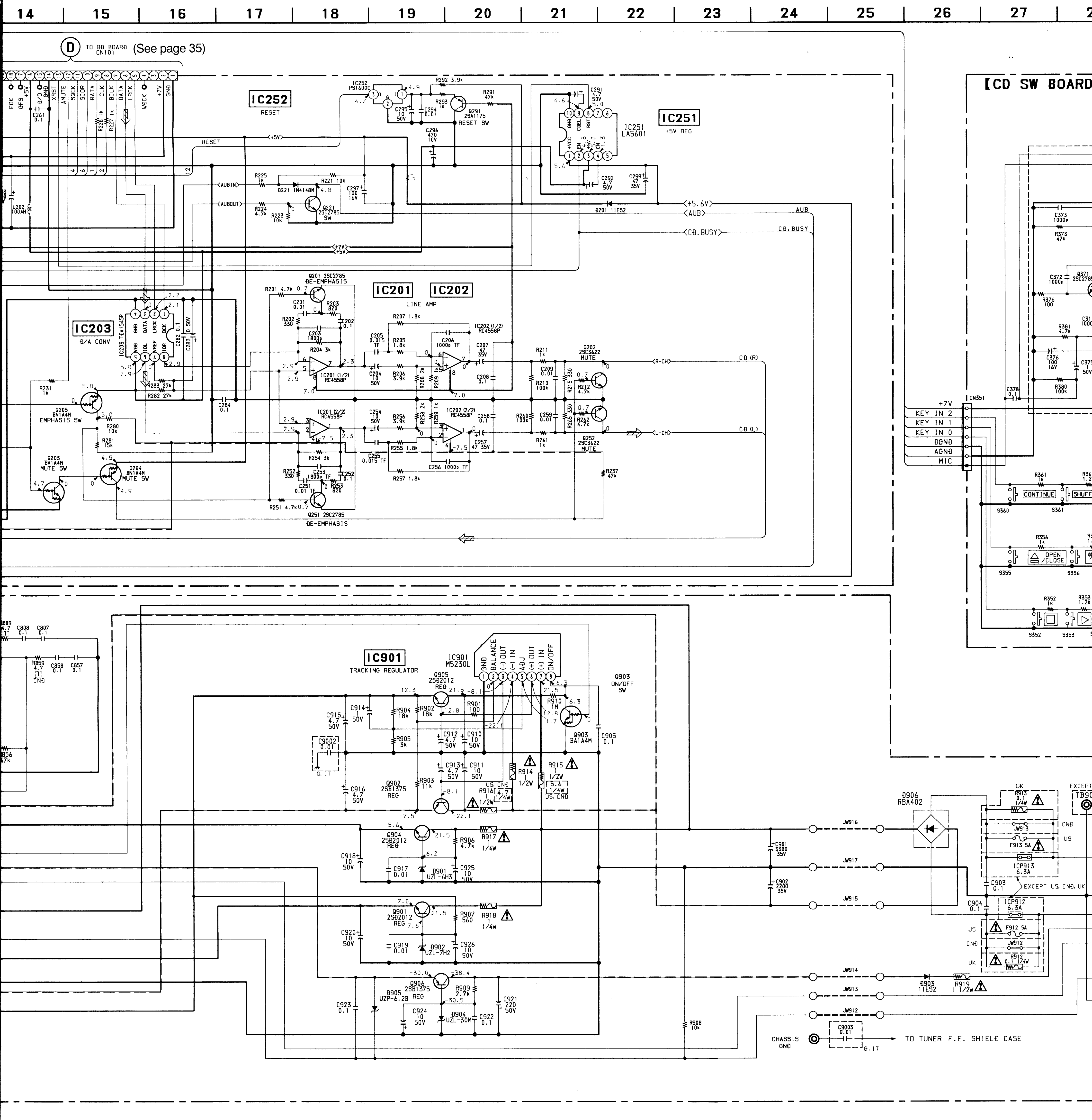

T.S.D
O.C.P
MOTOR DRIVE
MOTOR DRIVE
FWD/REV/STOP CONTROL LOGIC
1 GND
2 MOTOR DRIVE
3 NOISE FILTER
4 CLAMP
5 FWD.IN
6 REV.IN
7 VCC 1
8 VCC 2
9 NOISE FILTER
10 MOTOR DRIVE

• Waveforms

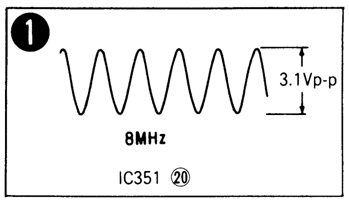


Note:
- All
50V
and
- All
spe

Note
The
fied
ted
are c
Repl
numb


14
15
16
17
18
19
20
21
22
23
24
25
26
27
D TO BD BOARD CN101 (See page 35)
IC252 RESET
IC251 +5V REG
IC251 LA5601
IC252 PST600C
Q291 2SA1175 RESET SW
Q221 2SC2785 SW
D221 1N4148M
D201 11ES2
<+5.6V>
<AUB>
<CD.BUSY>
<+7V>
<+5V>
RESET
<AUBIN>
<AUBOUT>
AUB
CD.BUSY
IC201 IC202 LINE AMP
IC203 D/A CONV
IC203 TDA1545P
Q201 2SC2785 DE-EMPHASIS
Q251 2SC2785 DE-EMPHASIS
IC201 (1/2) RC4558P
IC201 (2/2) RC4558P
IC202 (1/2) RC4558P
IC202 (2/2) RC4558P
Q202 2SC3622 MUTE
Q252 2SC3622 MUTE
Q205 BN1A4M EMPHASIS SW
Q203 BA1A4M MUTE SW
Q204 BN1A4M MUTE SW
<R-CH>
<L-CH>
CD (R)
CD (L)
[CD SW BOARD
CN351
+7V
KEY IN 2
KEY IN 1
KEY IN 0
DGND
AGND
MIC
CONTINUE
SHUFF
OPEN/CLOSE
S360
S361
S355
S356
S352
S353
IC901 TRACKING REGULATOR
IC901 M5230L
GND
BALANCE
(-) OUT
(-) IN
ADJ
(+) OUT
(+) IN
ON/OFF
Q905 2SD2012 REG
Q903 ON/OFF SW
Q903 BA1A4M
Q902 2SB1375 REG
Q904 2SD2012 REG
Q901 2SD2012 REG
Q906 2SB1375 REG
D901 UZL-6H3
D902 UZL-7H2
D904 UZL-30H
D905 UZP-6.2B
D906 RBA402
D903 11ES2
C901 3300 35V
C902 2200 35V
JW916
JW917
JW915
JW914
JW913
JW912
UK
EXCEPT
TB90
CND
US
F913 5A
ICP913 6.3A
C903 0.1
EXCEPT US, CND, UK
C904 0.1
ICP912 6.3A
F912 5A
JW912
R912 0.1 1/4W
R919 1 1/2W
R908 10k
CHASSIS GND
C9003 0.01
TO TUNER F.E. SHIELD CASE
C9002 0.01

• Waveforms



Note:

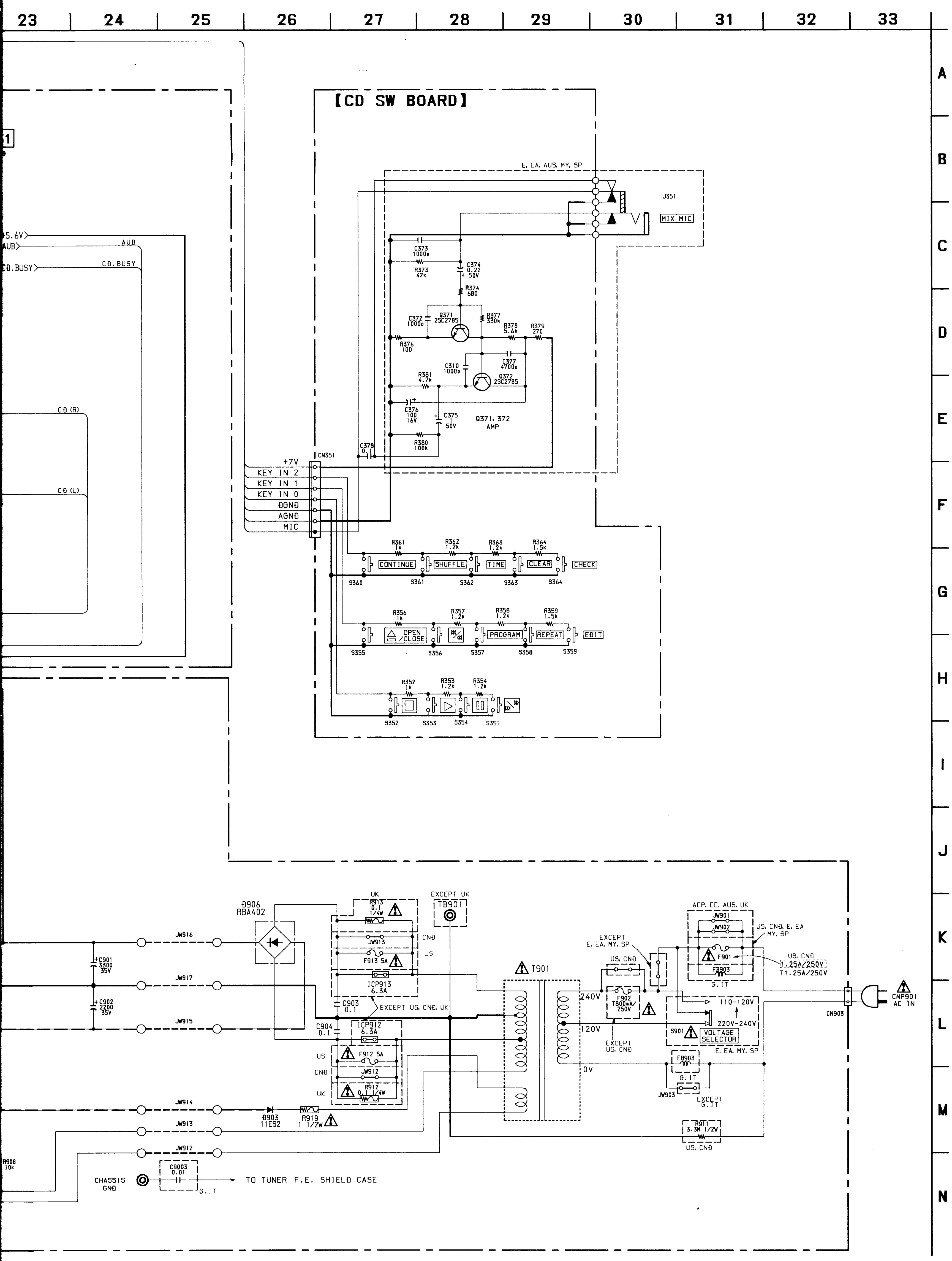
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ▭ : fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- ━━ : B+ Line
- ━ ━ ━ : B– Line

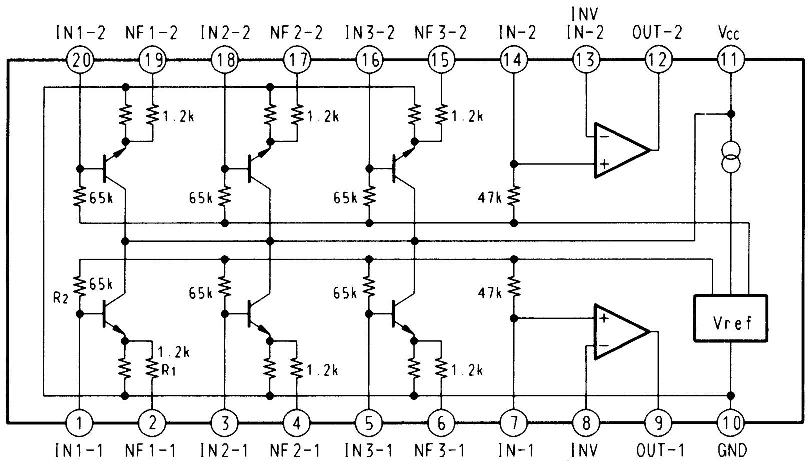
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : PLAY
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM ⇨ : CD

CND : Canadian	EE : East European
G : German	MY : Malaysia
IT : Italian	SP : Singapore
AUS : Australian	
EA : Saudi Arabia	

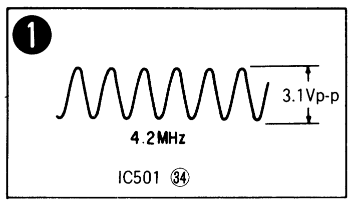

23
24
25
26
27
28
29
30
31
32
33
A
B
C
D
E
F
G
H
I
J
K
L
M
N
【CD SW BOARD】
E, EA, AUS, MY, SP
J351
MIX MIC
C373 1000p
R373 47k
C374 0.22 50V
R374 680
C372 1000p
Q371 2SC2785
R377 330k
R378 5.6k
R379 270
R376 100
C377 4700p
C310 1000p
R381 4.7k
Q372 2SC2785
C376 100 16V
C375 1 50V
Q371, 372 AMP
R380 100k
C378 0.1
CN351
+7V
KEY IN 2
KEY IN 1
KEY IN 0
DGND
AGND
MIC
5.6V
AUB
CD.BUSY
CD (R)
CD (L)
R361 1k
R362 1.2k
R363 1.2k
R364 1.5k
CONTINUE
SHUFFLE
TIME
CLEAR
CHECK
S360
S361
S362
S363
S364
R356 1k
R357 1.2k
R358 1.2k
R359 1.5k
OPEN /CLOSE
PROGRAM
REPEAT
EDIT
S355
S356
S357
S358
S359
R352 1k
R353 1.2k
R354 1.2k
S352
S353
S354
S351
D906 RBA402
JW916
JW917
JW915
JW914
JW913
JW912
C901 3300 35V
C902 2200 35V
UK
R913 0.1 1/4W
JW913
CND
US
F913 5A
ICP913 6.3A
EXCEPT UK
TB901
C903 0.1
EXCEPT US, CND, UK
C904 0.1
ICP912 6.3A
F912 5A
JW912
R912 0.1 1/4W
D903 11ES2
R919 1 1/2W
R908 10k
CHASSIS GND
C9003 0.01
G.IT
TO TUNER F.E. SHIELD CASE
T901
EXCEPT E, EA, MY, SP
US, CND
240V
F902 T800mA/250V
120V
EXCEPT US, CND
0V
AEP, EE, AUS, UK
JW901
JW902
US, CND, E, EA MY, SP
F901
FB903
G.IT
US, CND
T1.25A/250V
110-120V
220V-240V
S901
VOLTAGE SELECTOR
E, EA, MY, SP
FB903
JW903
EXCEPT G.IT
R971 3.3M 1/2W
CN903
CNP901 AC IN

- **IC Block Diagram**

IC604 M5243P12


IN1-2
NF1-2
IN2-2
NF2-2
IN3-2
NF3-2
IN-2
INV IN-2
OUT-2
Vcc
1.2k
65k
47k
R2
R1
Vref
IN1-1
NF1-1
IN2-1
NF2-1
IN3-1
NF3-1
IN-1
INV IN-1
OUT-1
GND

- **Waveforms**

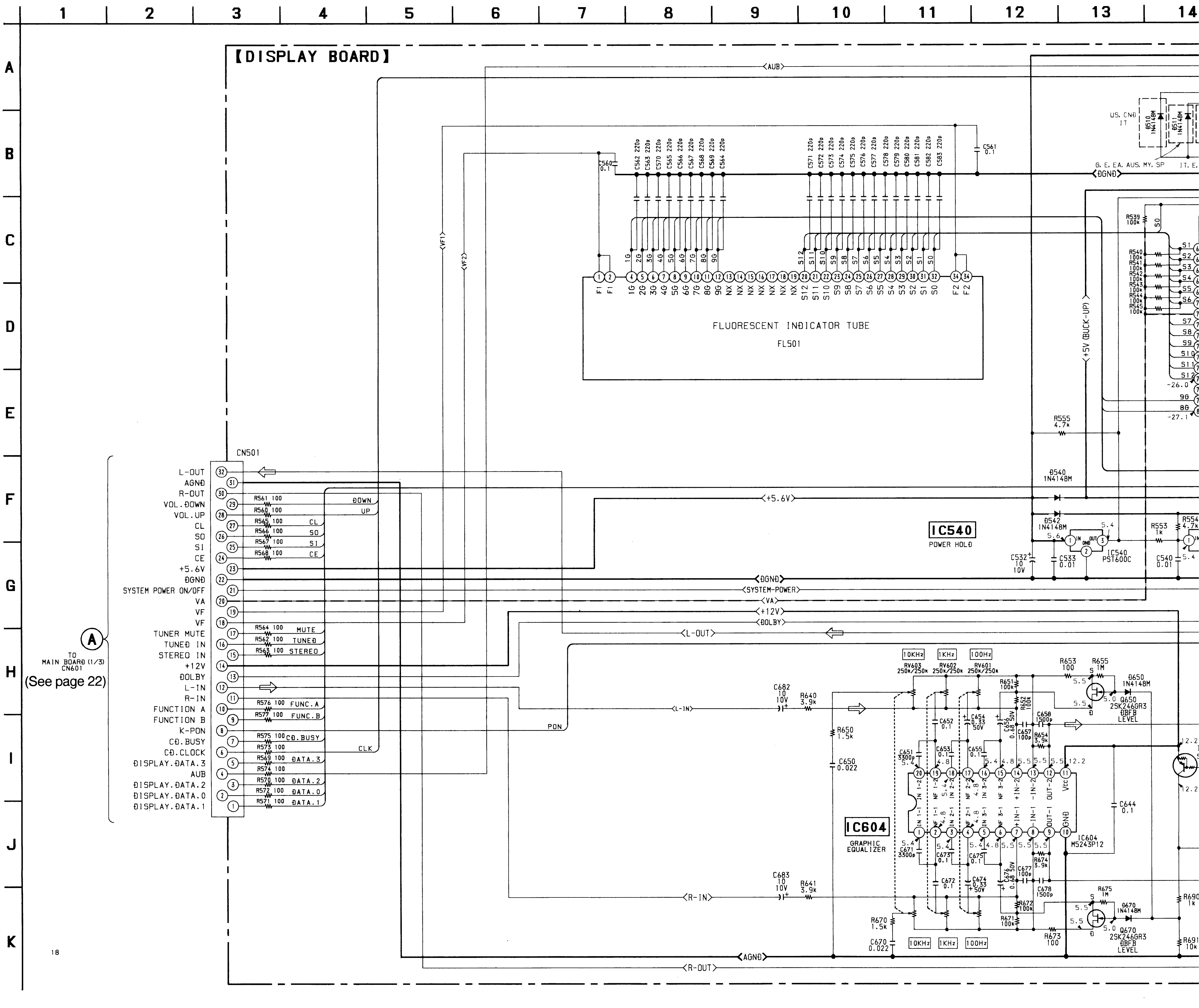

❶
3.1Vp-p
4.2MHz
IC501 ㉞

MC-Service

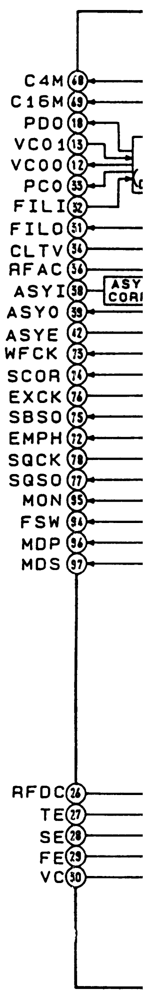
Note:
- Al
50
an
- Al
spe
-
-
-
- Vo
und
no
- Vo
Vo
tio
- Wa
Vo
tio
- Cir
- Sig

CND
G
IT
AUS
EA

4-8. SCHEMATIC DIAGRAM —DISPLAY Section—


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
K
【DISPLAY BOARD】
<AUB>
<DGND>
<+5.6V>
<SYSTEM-POWER>
<VA>
<+12V>
<DOLBY>
<L-OUT>
<L-IN>
<R-IN>
<AGND>
<R-OUT>
<VF1>
<VF2>
<+5V (BUCK-UP)>
FLUORESCENT INDICATOR TUBE
FL501
CN501
L-OUT
AGND
R-OUT
VOL.DOWN
VOL.UP
CL
SO
SI
CE
+5.6V
DGND
SYSTEM POWER ON/OFF
VA
VF
VF
TUNER MUTE
TUNED IN
STEREO IN
+12V
DOLBY
L-IN
R-IN
FUNCTION A
FUNCTION B
K-PON
CD.BUSY
CD.CLOCK
DISPLAY.DATA.3
AUB
DISPLAY.DATA.2
DISPLAY.DATA.0
DISPLAY.DATA.1
A
TO MAIN BOARD (1/3) CN601
(See page 22)
IC540
POWER HOLD
IC540 PST600C
D540 1N4148M
D542 1N4148M
R555 4.7k
IC604
GRAPHIC EQUALIZER
IC604 M5243P12
10KHz
1KHz
100Hz
RV603 250k/250k
RV602 250k/250k
RV601 250k/250k
Q650 2SK246GR3 DBFB LEVEL
Q670 2SK246GR3 DBFB LEVEL
C682 10 10V
R640 3.9k
C683 10 10V
R641 3.9k
R650 1.5k
C650 0.022
R670 1.5k
C670 0.022
PON
CLK
DOWN
UP

● IC Block Diagram IC10

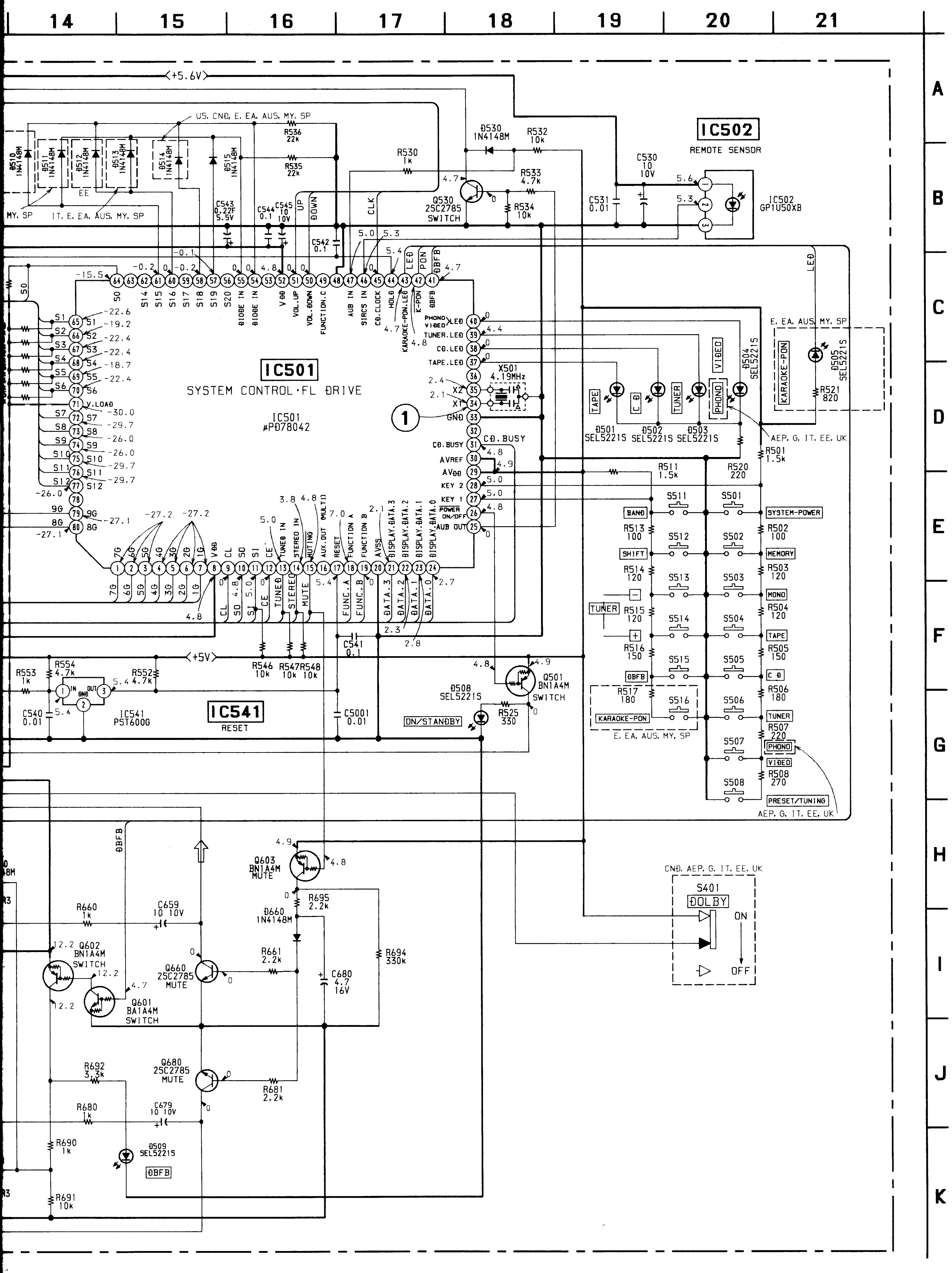


C4M
C16M
PDO
VCO1
VCO0
PCO
FILI
FILO
CLTV
RFAC
ASYI
ASYO
ASYE
WFCK
SCOR
EXCK
SBSO
EMPH
SQCK
SQSO
MON
FSW
MDP
MDS
RFDC
TE
SE
FE
VC

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $^1/_4$W or less unless otherwise specified.
- △ : internal component.
- ▬▬ : B+ Line
- ▬ ▬ ▬ : B– Line
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM

CND : Canadian
G : German
IT : Italian
AUS : Australian
EA : Saudi Arabia
EE : East European
MY : Malaysia
SP : Singapore

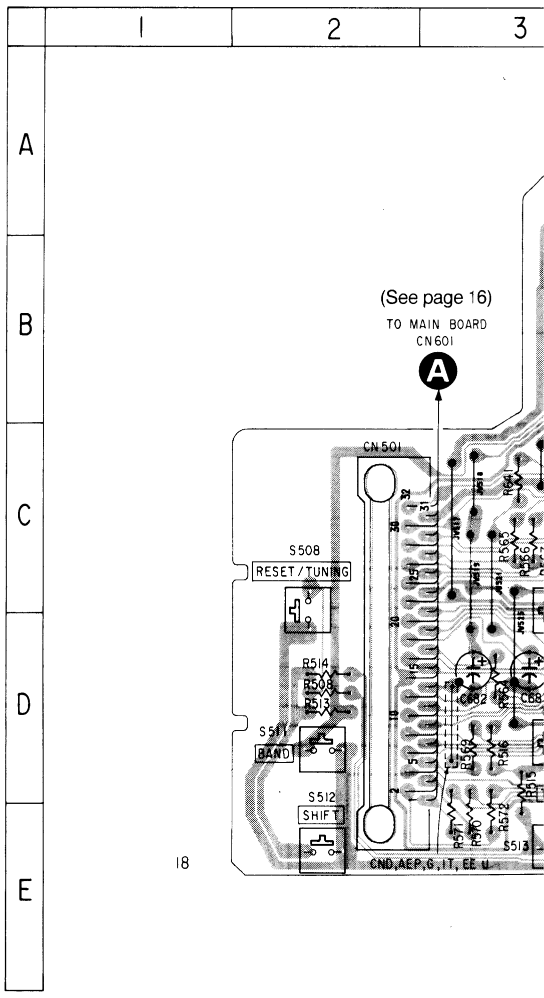


14
15
16
17
18
19
20
21
A
B
C
D
E
F
G
H
I
J
K
<+5.6V>
US, CND, E, EA, AUS, MY, SP
IC502
REMOTE SENSOR
IC502 GP1U50XB
D530 1N4148M
R532 10k
R530 1k
R533 4.7k
R534 10k
Q530 2SC2785 SWITCH
C530 10 10V
C531 0.01
R536 22k
R535 22k
C543 0.22F 5.5V
C544 0.1
C545 10 10V
C542 0.1
IC501
SYSTEM CONTROL·FL DRIVE
IC501 μPD78042
X501 4.19MHz
①
E, EA, AUS, MY, SP
D504 SEL5221S
D505 SEL5221S
R521 820
TAPE
CD
TUNER
PHONO
VIDEO
KARAOKE-PON
LED
D501 SEL5221S
D502 SEL5221S
D503 SEL5221S
AEP, G, IT, EE, UK
R501 1.5k
R511 1.5k
R520 220
S501 SYSTEM-POWER
S511 BAND
S502 MEMORY
S512 SHIFT
S503 MONO
S513
S504
S514 TUNER
S505 CD
S515
S506 TUNER
S516 KARAOKE-PON
S507 PHONO
S508 PRESET/TUNING
R502 100
R503 120
R504 120
R505 150
R506 180
R507 220
R508 270
R513 100
R514 120
R515 120
R516 150
R517 180
E, EA, AUS, MY, SP
AEP, G, IT, EE, UK
CD.BUSY
AVREF
AVDD
KEY 1
KEY 2
POWER ON/OFF
AUB OUT
PHONO/VIDEO LED
TUNER.LED
CD.LED
TAPE.LED
X2
X1
GND
<+5V>
R553 1k
R554 4.7k
R552 4.7k
C540 0.01
IC541 PST600G
IC541 RESET
R546 10k
R547 10k
R548 10k
C541 0.1
C5001 0.01
D508 SEL5221S
Q501 BN1A4M SWITCH
R525 330
ON/STANDBY
Q603 BN1A4M MUTE
D660 1N4148M
R695 2.2k
R694 330k
C680 4.7 16V
R661 2.2k
Q660 2SC2785 MUTE
R660 1k
C659 10 10V
Q602 BN1A4M SWITCH
Q601 BA1A4M SWITCH
R692 3.3k
Q680 2SC2785 MUTE
R681 2.2k
R680 1k
C679 10 10V
R690 1k
D509 SEL5221S
DBFB
R691 10k
CND, AEP, G, IT, EE, UK
S401 DOLBY
ON
OFF

- **Semiconductor Location**

Ref. No.	Location
D501	D-8
D502	D-7
D503	D-6
D504	E-5
D505	C-6
D508	D-9
D509	C-5
D510	B-9
D511	B-9
D512	B-9
D513	B-9
D514	B-9
D515	B-9
D530	C-9
D540	C-9
D542	D-9
D650	B-6
D660	C-5
D670	C-4
IC501	B-7
IC502	C-10
IC540	C-9
IC541	D-9
IC604	D-4
Q501	D-9
Q530	C-9
Q601	E-5
Q602	E-5
Q603	C-6
Q650	B-6
Q660	C-5
Q670	C-4
Q680	C-5

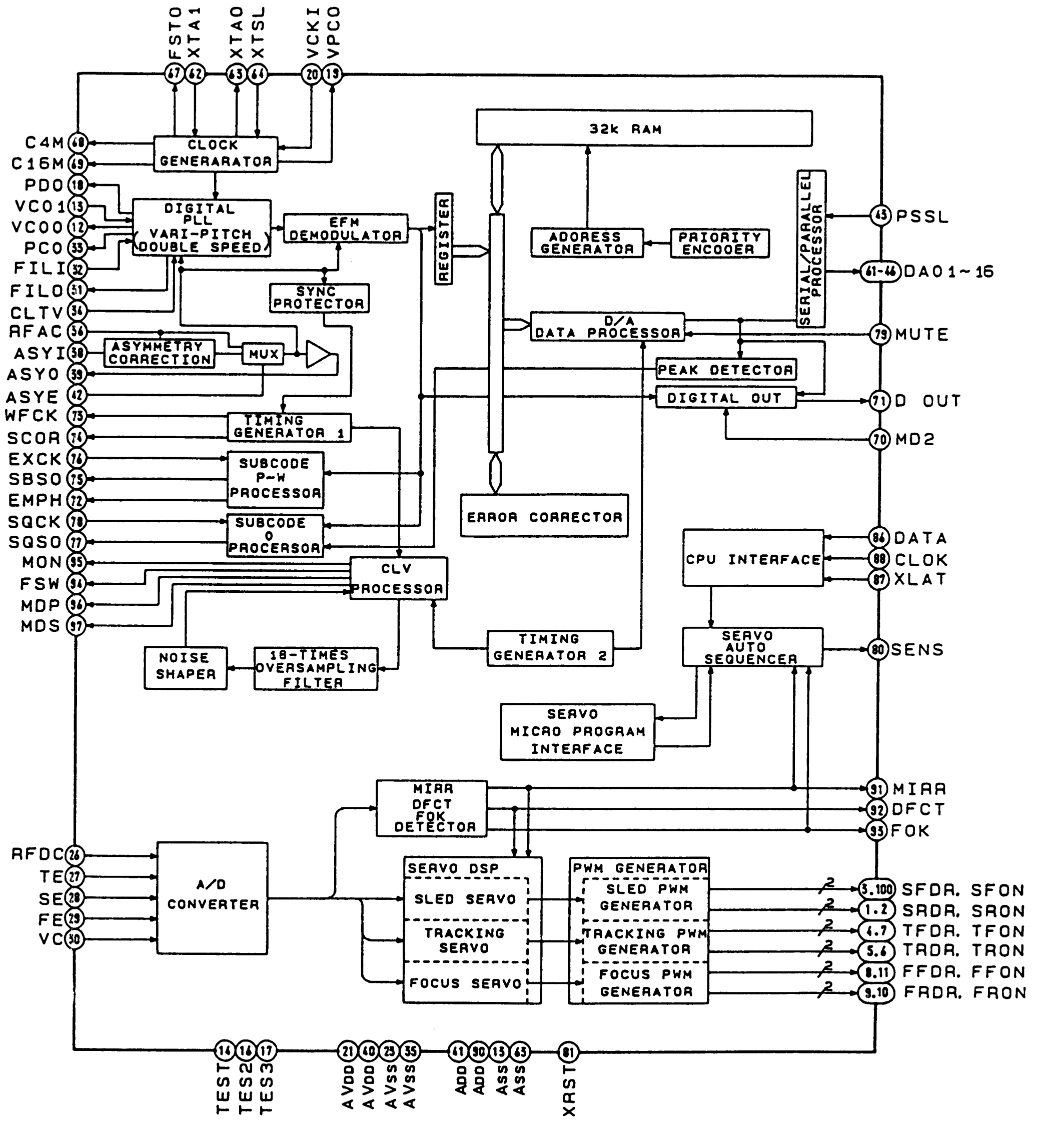
4-9. PRINTED WIRING BOARDS —DI



1
2
3
A
B
C
D
E
(See page 16)
TO MAIN BOARD CN601
A
CN501
S508 RESET/TUNING
S511 BAND
S512 SHIFT
CND, AEP, G, IT, EE
18

MC-Service

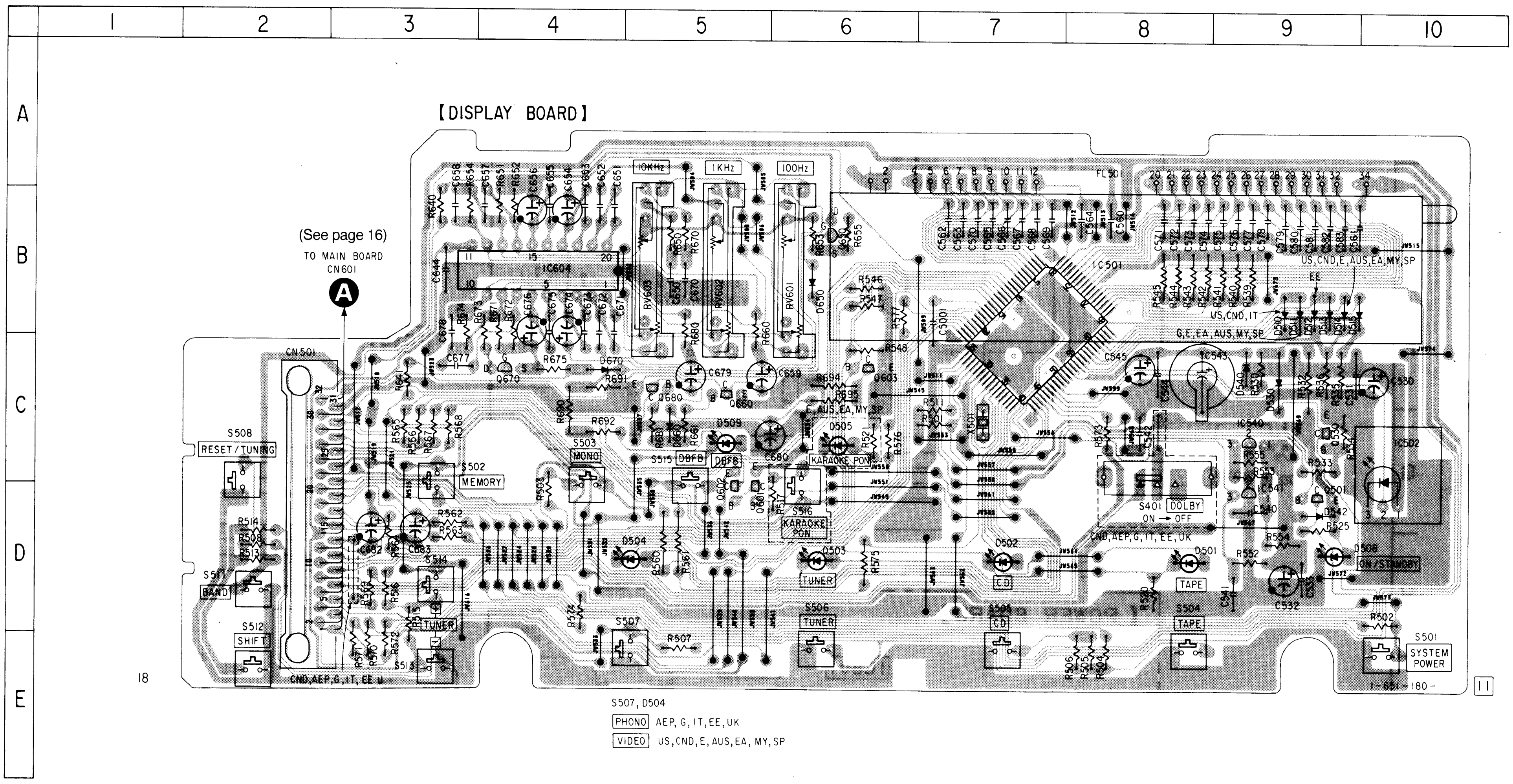
• IC Block Diagram **IC101 CXD2515Q**


FSTO
XTA1
XTAO
XTSL
VCKI
VPCO
C4M
C16M
PDO
VCO1
VCOO
PCO
FILI
FILO
CLTV
RFAC
ASYI
ASYO
ASYE
WFCK
SCOR
EXCK
SBSO
EMPH
SQCK
SQSO
MON
FSW
MDP
MDS
CLOCK GENERARATOR
DIGITAL PLL VARI-PITCH DOUBLE SPEED
EFM DEMODULATOR
SYNC PROTECTOR
ASYMMETRY CORRECTION
MUX
TIMING GENERATOR 1
SUBCODE P-W PROCESSOR
SUBCODE Q PROCERSOR
CLV PROCESSOR
NOISE SHAPER
18-TIMES OVERSAMPLING FILTER
REGISTER
32k RAM
ADDRESS GENERATOR
PRIORITY ENCODER
SERIAL/PARALLEL PROCESSOR
D/A DATA PROCESSOR
PEAK DETECTOR
DIGITAL OUT
ERROR CORRECTOR
CPU INTERFACE
TIMING GENERATOR 2
SERVO AUTO SEQUENCER
SERVO MICRO PROGRAM INTERFACE
MIRR DFCT FOK DETECTOR
A/D CONVERTER
SERVO DSP
SLED SERVO
TRACKING SERVO
FOCUS SERVO
PWM GENERATOR
SLED PWM GENERATOR
TRACKING PWM GENERATOR
FOCUS PWM GENERATOR
PSSL
DAO1~16
MUTE
D OUT
MD2
DATA
CLOK
XLAT
SENS
MIRR
DFCT
FOK
RFDC
TE
SE
FE
VC
SFDR, SFON
SRDR, SRON
TFDR, TFON
TRDR, TRON
FFDR, FFON
FRDR, FRON
TEST
TES2
TES3
AVDD
AVDD
AVSS
AVSS
ADD
ADD
ASS
ASS
XRST

4-9. PRINTED WIRING BOARDS —DISPLAY Section— •See page 13, 14 for Circuit Boards Location and Semiconductor Lead Layouts.

miconductor
cation

No.	Location
1	D-8
2	D-7
3	D-6
4	E-5
5	C-6
8	D-9
9	C-5
0	B-9
1	B-9
2	B-9
3	B-9
4	B-9
5	B-9
0	C-9
0	C-9
2	D-9
0	B-6
0	C-5
0	C-4
01	B-7
02	C-10
40	C-9
41	D-9
04	D-4
1	D-9
0	C-9
1	E-5
2	E-5
3	C-6
0	B-6
0	C-5
0	C-4
0	C-5

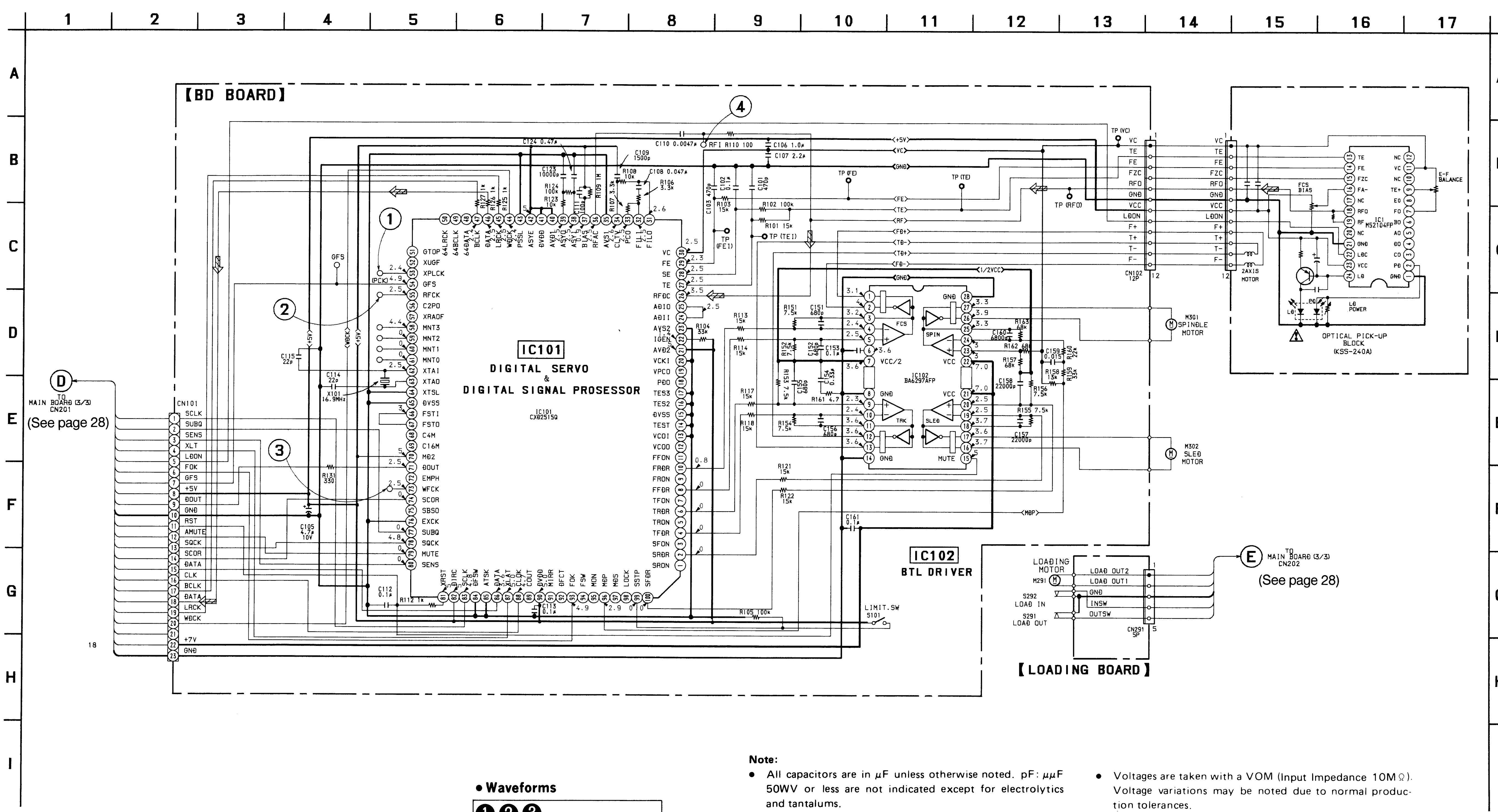

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
【DISPLAY BOARD】
(See page 16)
TO MAIN BOARD CN601
A
CN501
S508 RESET/TUNING
S502 MEMORY
S503 MONO
S515 DBFB
S516 KARAOKE PON
S511 BAND
S512 SHIFT
S513
S514 TUNER
S507
S506 TUNER
S505 CD
S504 TAPE
S401 DOLBY ON → OFF
S501 SYSTEM POWER
D508 ON/STANDBY
IC501
IC502
IC540
IC541
IC543
IC604
FL501
10KHz
1KHz
100Hz
US,CND,E,AUS,EA,MY,SP
G,E,EA,AUS,MY,SP
E,AUS,EA,MY,SP
CND,AEP,G,IT,EE,UK
1-661-180-
11
18
S507, D504
PHONO AEP, G, IT, EE, UK
VIDEO US, CND, E, AUS, EA, MY, SP

Note:

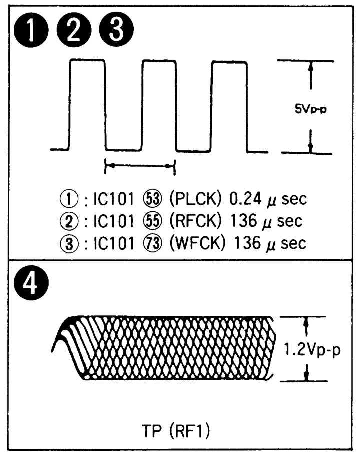
- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.

CND : Canadian	EE : East European
G : German	MY : Malaysia
IT : Italian	SP : Singapore
AUS : Australian	
EA : Saudi Arabia	

4-10. SCHEMATIC DIAGRAM —CD Section—


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A B C D E F G H I
【BD BOARD】
IC101
DIGITAL SERVO
&
DIGITAL SIGNAL PROCESSOR
IC101
CXD2515Q
IC102
BTL DRIVER
IC102
BA6297AFP
CN101
SCLK
SUBQ
SENS
XLT
LDON
FOK
GFS
+5V
DOUT
GND
RST
AMUTE
SQCK
SCOR
DATA
CLK
BCLK
DATA
LRCK
WDCK
+7V
GND
TO
MAIN BOARD (3/3)
CN201
(See page 28)
TO
MAIN BOARD (3/3)
CN202
(See page 28)
X101
16.9MHz
M301
SPINDLE
MOTOR
M302
SLED
MOTOR
LOADING
MOTOR
M291
S292
LOAD IN
S291
LOAD OUT
LIMIT.SW
S101
【LOADING BOARD】
LOAD OUT2
LOAD OUT1
GND
INSW
OUTSW
CN291
5P
CN102
12P
VC
TE
FE
FZC
RFO
GND
VCC
LDON
F+
T+
T-
F-
2AXIS
MOTOR
FCS
BIAS
E-F
BALANCE
IC1
M52104FP
LD
POWER
OPTICAL PICK-UP
BLOCK
(KSS-240A)
TP (VC)
TP (FE)
TP (TE)
TP (RFO)
TP (FEI)
TP (TEI)
RFI
GFS
(PCK)
FCS
SPIN
TRK
SLED
MUTE
VCC/2
18

• Waveforms



① : IC101 (53) (PLCK) 0.24 μ sec
② : IC101 (55) (RFCK) 136 μ sec
③ : IC101 (73) (WFCK) 136 μ sec

TP (RF1)

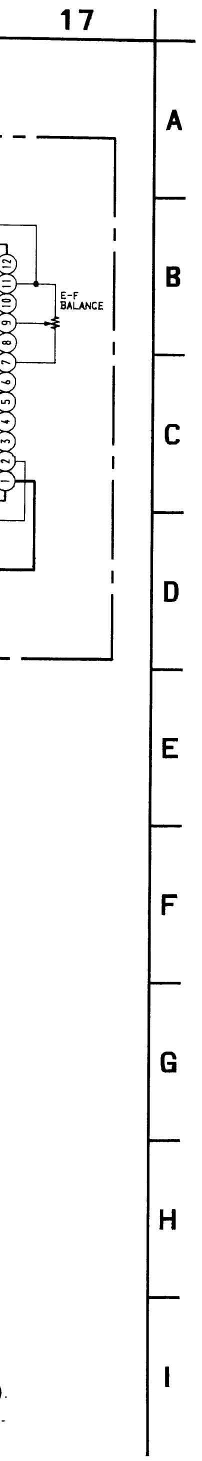
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

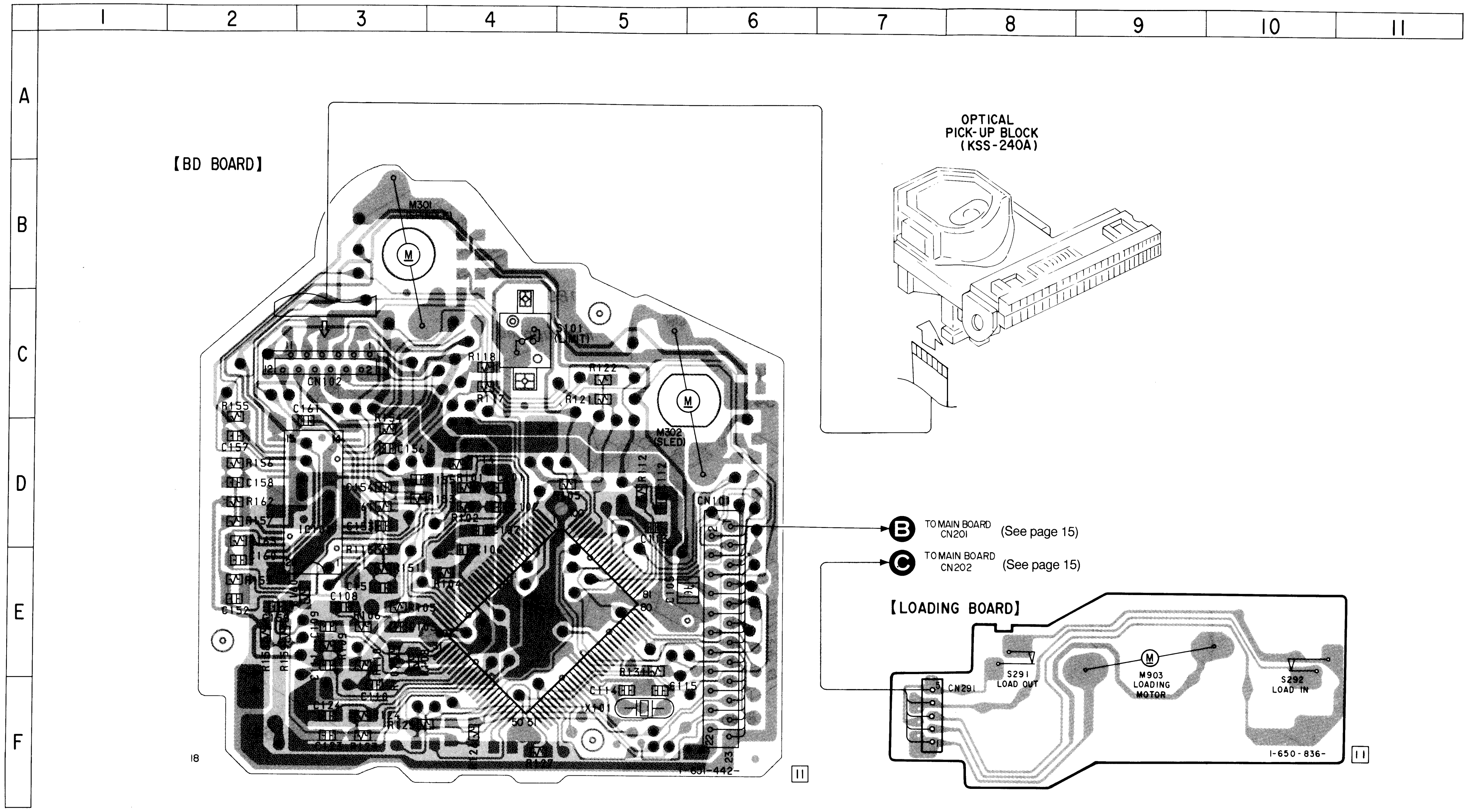
- ▬ : B+ Line
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : PLAY

- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD


17
A
B
C
D
E
F
G
H
I
E-F BALANCE

4-11. PRINTED WIRING BOARDS —CD Section—

●See page 13, 14 for Circuit Boards Location and Semiconductor Lead Layouts.


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
【BD BOARD】
M301
M
S101 (LIMIT)
M302 (SLED)
CN102
CN101
IC101
IC102
X101
R155
C157
R156
C158
R162
R157
C161
C156
R118
R117
R122
R121
R112
R102
R103
R104
R105
R106
R111
C108
C109
C110
C114
C115
C151
C152
C153
C154
R134
R127
18
1-631-442-
11
OPTICAL PICK-UP BLOCK (KSS-240A)
B TO MAIN BOARD CN201 (See page 15)
C TO MAIN BOARD CN202 (See page 15)
【LOADING BOARD】
CN291
S291 LOAD OUT
M903 LOADING MOTOR
S292 LOAD IN
1-650-836-
11

● Semiconductor Location

Ref. No.	Location
IC101	E - 4
IC102	D - 3

Note:

- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ● : Through hole.
- ▨ : Pattern on the side which is seen.
- ░ : Pattern of the rear side.

SECTION 5
EXPLODED VIEWS

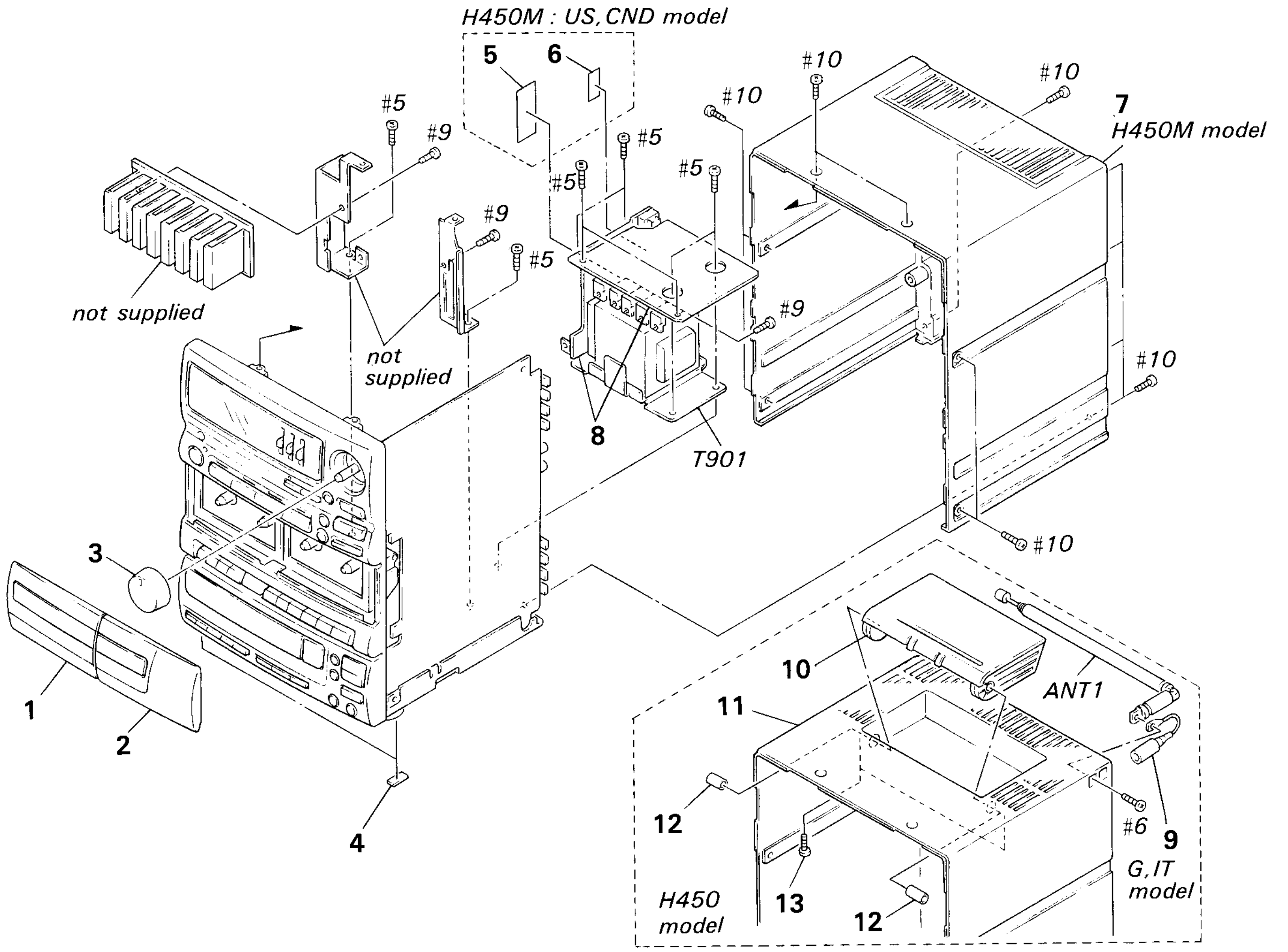
NOTE:
- -xx,-x mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE)...(RED)
  ↑ Parts color ↑ Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (#mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviations

CND:	Canadian	EA:	Saudi Arabia
IT:	Italian	SP:	Singapore
G:	German	MY:	Malaysia
EE:	East European	AUS:	Australian

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

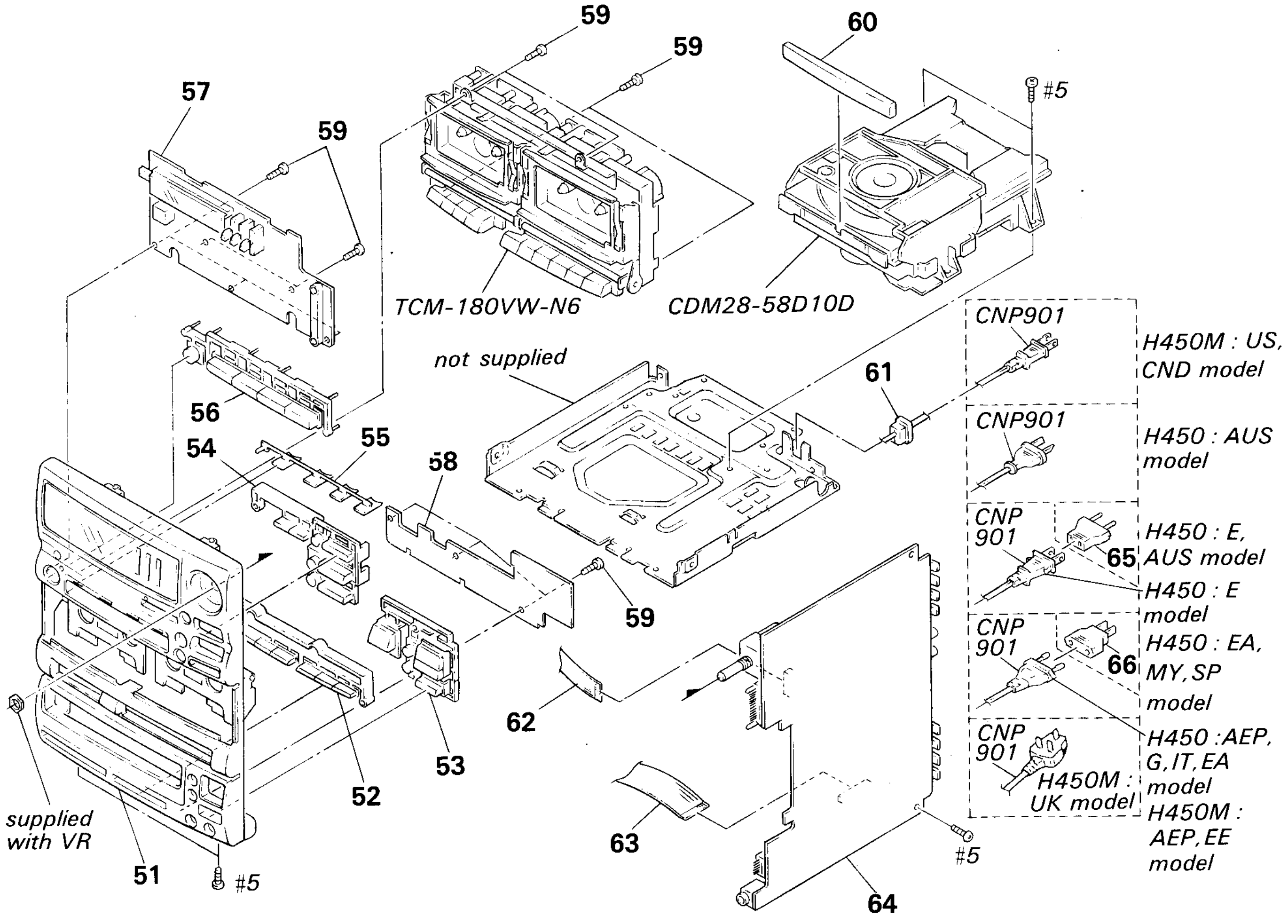
Les components identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

5-1. CABINET SECTION



Ref.No.	Part No.	Description	Remark
1	A-4353-939-A	LID (A) ASSY, CASSETTE	
2	A-4353-940-A	LID (B) ASSY, CASSETTE	(H450:E2, AUS, EA, MY, SP)
2	A-4353-941-A	LID (B) ASSY, CASSETTE	(H450:AEP, G, IT)
2	A-4353-944-A	LID (B) ASSY, CASSETTE	(H450M:CND, AEP, UK, EE)
2	A-4353-945-A	LID (B) ASSY, CASSETTE	(H450M:US)
3	4-964-858-01	KNOB (V)	
4	4-930-336-81	FOOT (FELT)	
5	3-703-044-26	LABEL, CAUTION	(H450M:US, CND)
*6	3-701-946-11	LABEL, FUSE RATING	(H450M:US, CND)
7	4-963-306-51	CASE	(H450M)
*8	A-4369-104-A	POWER BOARD, COMPLETE	(H450M:UK)
*8	A-4369-110-A	POWER BOARD, COMPLETE	(H450M:US)
*8	A-4369-111-A	POWER BOARD, COMPLETE	(H450:AEP, AUS /H450M:AEP, EE)
*8	A-4369-121-A	POWER BOARD, COMPLETE	(H450:E, EA, MY, SP)
*8	A-4369-122-A	POWER BOARD, COMPLETE	(H450:G, IT)
*8	A-4371-249-A	POWER BOARD, COMPLETE	(H450M:CND)
9	1-501-594-21	ANTENNA (FM)	(H450:G, IT)
10	4-963-673-01	HANDLE	(H450)
11	4-964-234-31	CASE (FH)	(H450:E, EA, MY, SP)
11	4-964-234-41	CASE (FH)	(H450:AEP, G, IT, AUS)
12	4-963-672-01	COLLAR	(H450)
13	4-951-620-11	SCREW (2.6X10), +BVTP	
⚠T901	1-426-656-11	TRANSFORMER, POWER	(H450:AUS/H450M:UK)
⚠T901	1-426-657-11	TRANSFORMER, POWER	(H450:AEP, G, IT, /H450M:AEP, EE)
⚠T901	1-426-658-11	TRANSFORMER, POWER	(H450M:US, CND)
⚠T901	1-426-659-11	TRANSFORMER, POWER	(H450:E, EA, MY, SP)
ANT1	1-501-321-51	ANTENNA, TELESCOPIC	(H450)

5-2. CHASSIS SECTION

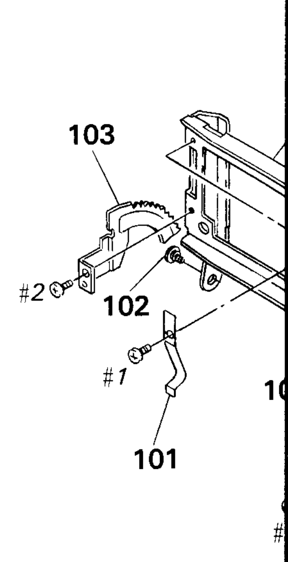


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

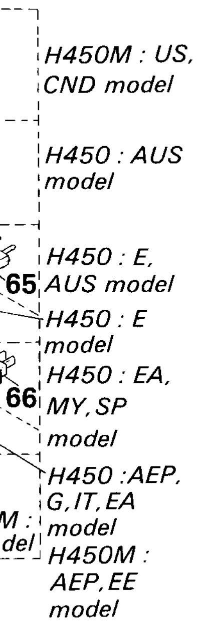
Les components identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description	Remark
51	A-4353-937-A	PANEL ASSY, FRONT	(H450:E, AUS, EA, MY, SP)
51	A-4353-938-A	PANEL ASSY, FRONT	(H450:AEP, G, IT /H450M:CND, AEP, EE)
51	A-4353-946-A	PANEL ASSY, FRONT	(H450M:US)
52	4-963-655-01	BUTTON (CDP)	
53	4-964-103-01	BUTTON (CD)	
54	4-964-111-01	BUTTON (TA)	
55	4-964-104-01	INDICATOR (FUNCTION)	
56	4-964-102-01	BUTTON (POWER/FUNCTION)	(H450:E, AUS, EA, MY, SP/ H450M:US, CND)
56	4-964-102-11	BUTTON (POWER/FUNCTION)	(H450:AEP, G, IT/ H450M:AEP, UK, EE)
*57	A-4357-983-A	DISPLAY BOARD, COMPLETE	(H450M:EE)
*57	A-4364-021-A	DISPLAY BOARD, COMPLETE	(H450M:CND)
*57	A-4369-103-A	DISPLAY BOARD, COMPLETE	(H450M:UK)
*57	A-4369-108-A	DISPLAY BOARD, COMPLETE	(H450M:US)
*57	A-4369-109-A	DISPLAY BOARD, COMPLETE	(AEP)
*57	A-4369-117-A	DISPLAY BOARD, COMPLETE	(H450:E, AUS, EA, MY, SP)
*57	A-4369-118-A	DISPLAY BOARD, COMPLETE	(H450:G)
*57	A-4369-119-A	DISPLAY BOARD, COMPLETE	(H450:IT)
*57	A-4371-090-A	DISPLAY BOARD, COMPLETE	(H450M:EE)
*57	A-4371-234-A	DISPLAY BOARD, COMPLETE	(H450M:CND)
*58	A-4369-105-A	CD SW BOARD, COMPLETE	(H450M:UK)
*58	A-4369-112-A	CD SW BOARD, COMPLETE	(H450:E, AUS, EA, MY, SP)
*58	A-4369-113-A	CD SW BOARD, COMPLETE	(H450:AEP, G, IT/ H450M:US, CND, AEP, EE)
59	4-951-620-11	SCREW (2.6X10), +BVTP	
60	4-963-286-11	PANEL, LOADING	
*61	3-703-244-00	BUSHING (2104), CORD	(EXCEPT H450:E)
61	3-703-571-00	BUSHING (S) (4516), CORD	(H450:E)
62	1-765-125-11	WIRE (FLAT TYPE) (9 CORE)	
63	1-765-124-11	WIRE (FLAT TYPE)	
*64	A-4369-102-A	MAIN BOARD, COMPLETE	(H450M:UK)
*64	A-4369-106-A	MAIN BOARD, COMPLETE	(H450M:US)
*64	A-4369-107-A	MAIN BOARD, COMPLETE	(AEP)
*64	A-4369-114-A	MAIN BOARD, COMPLETE	(H450:E, AUS, EA, MY, SP)
*64	A-4369-115-A	MAIN BOARD, COMPLETE	(H450:G, IT)
*64	A-4371-091-A	MAIN BOARD, COMPLETE	(H450M:EE)
*64	A-4371-218-A	MAIN BOARD, COMPLETE	(H450M:CND)
⚠65	1-569-007-11	ADAPTER, CONVERSION 2P	(H450:E, AUS)
⚠66	1-569-008-11	ADAPTER, CONVERSION 2P	(H450:EA, MY, SP)
⚠CNP901	1-558-943-41	CORD, POWER	(H450:E)
⚠CNP901	1-575-042-31	CORD, POWER	(H450M:US, CND)
⚠CNP901	1-575-651-91	CORD, POWER	(H450:AEP, G, IT, EA, MY, SP /H450M:AEP, EE)
⚠CNP901	1-696-846-21	CORD, POWER	(H450:AUS)
⚠CNP901	1-751-522-21	CORD, POWER	(H450M:UK)

5-3. MECHANISM
(TCM-180VW-



Ref.No.	Part No.	Descri
101	3-358-280-01	SPRING
102	3-358-277-01	SCREW,
*103	3-358-276-01	RACK,
104	3-358-282-01	HOLDER
105	4-919-393-21	DAMPER


H450M : US, CND model
H450 : AUS model
H450 : E, AUS model
65
H450 : E model
H450 : EA, MY, SP model
66
H450 :AEP, G, IT, EA model
M :
del
H450M : AEP, EE model

ts identifiés par une
nt critiques pour

cer que par une pièce
éro spécifié.

Remark
0:AEP, G, IT/
US, CND, AEP, EE)

PT H450:E)
H450:E)

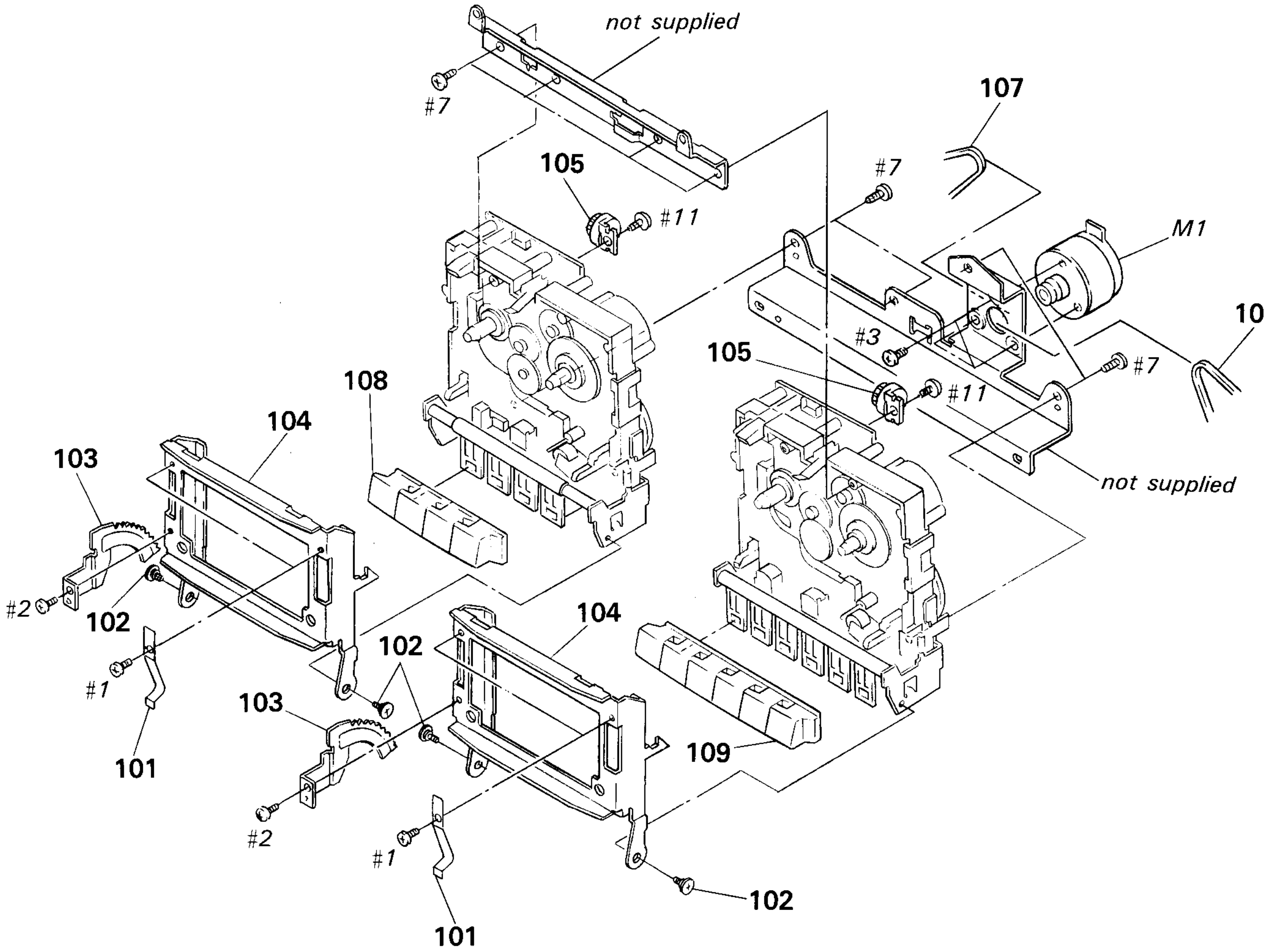
M:UK)
M:US)

:E, AUS, EA, MY, SP)
:G, IT)
M:EE)
M:CND)
50:E, AUS)

50:EA, MY, SP)

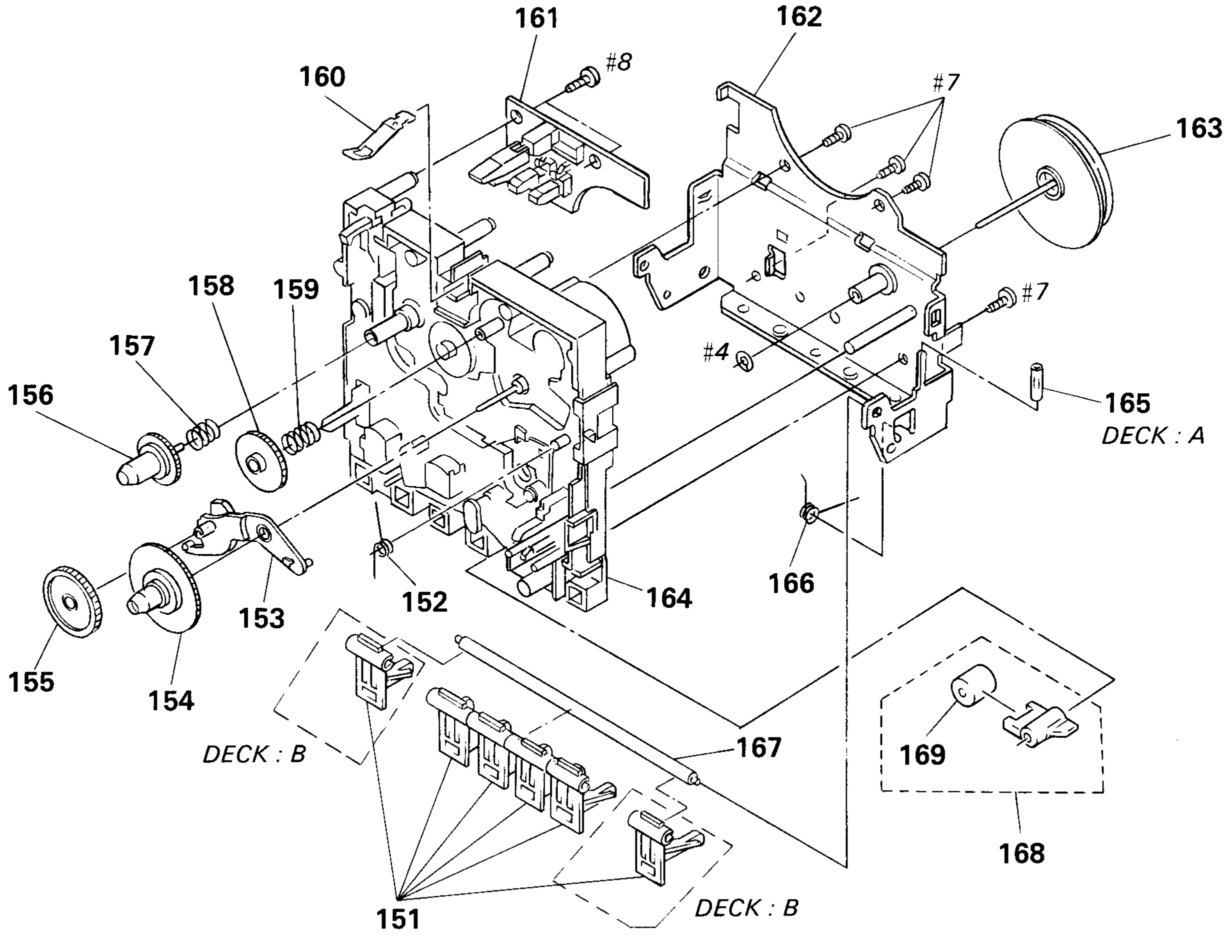
, EA, MY, SP
/H450M:AEP, EE)

5-3. MECHANISM DECK SECTION-1
(TCM-180VW-N6)


not supplied
#7
107
105
#11
#7
M1
106
#3
105
#11
#7
not supplied
108
104
103
#2
102
#1
101
104
102
103
#2
#1
109
101
102

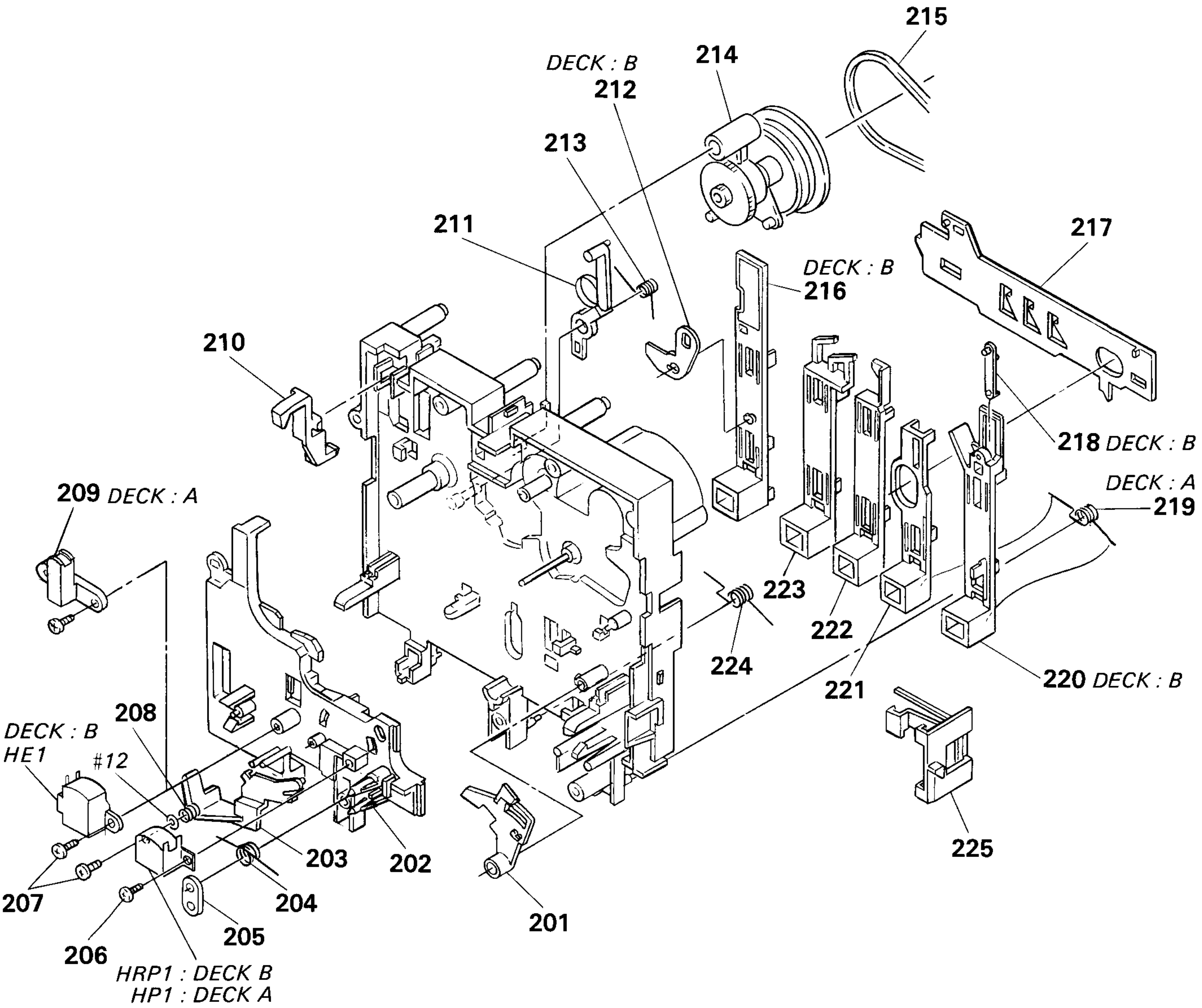
Ref.No.	Part No.	Description	Remark
101	3-358-280-01	SPRING (CASSETTE HOLDER FH)	
102	3-358-277-01	SCREW, STEP	
∗103	3-358-276-01	RACK, GEAR	
104	3-358-282-01	HOLDER (FH), CASSETTE	
105	4-919-393-21	DAMPER	
106	3-911-187-01	BELT (WH)	
107	3-358-230-01	BELT (A1)	
108	4-956-320-01	BUTTON (TC-A)	
109	4-956-321-01	BUTTON (TC-B)	
M1	X-3362-377-1	MOTOR (WH) ASSY	

5-4. MECHANISM DECK SECTION-2
(TCM-180VW-N6)


161
162
#8
160
#7
163
158
159
157
#7
156
#4
165
DECK : A
155
154
153
152
164
166
DECK : B
167
169
168
151
DECK : B

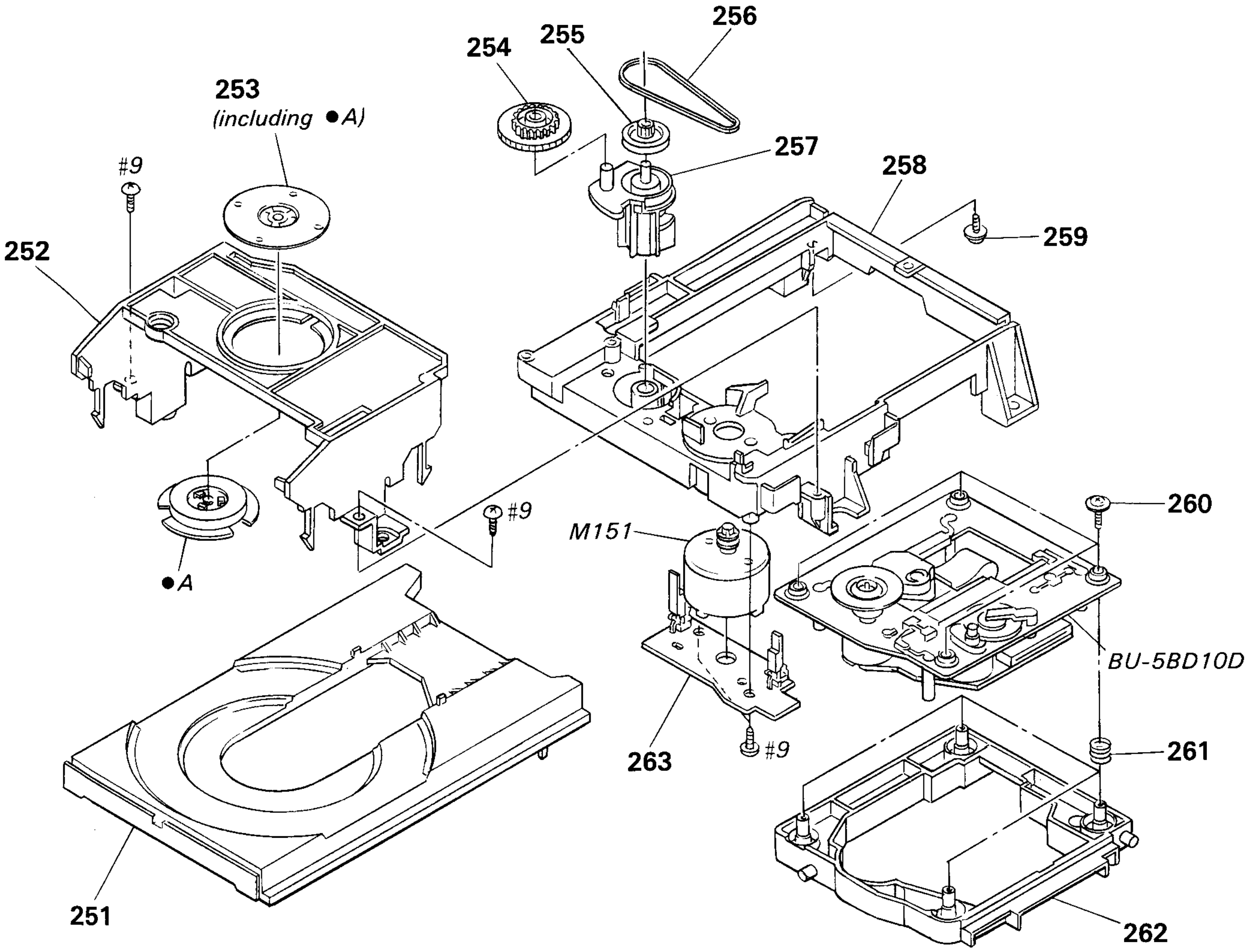
Ref.No.	Part No.	Description	Remark
151	3-369-334-01	LEVER (BUTTON BASE E)	
152	3-358-243-01	SPRING (TU-SHUT), TORSION	
∗153	3-358-252-01	LEVER (TU ARM)	
154	X-3358-203-1	TABLE (T) ASSY, REEL	
∗155	3-358-284-01	GEAR (TU GEAR)	
156	3-358-248-01	GEAR (SUPPLY REEL)	
157	3-358-208-01	SPRING (SUPPLY), COMPRESSION	
∗158	3-358-224-01	GEAR (FF GEAR)	
159	3-358-207-01	SPRING (FF GEAR), COMPRESSION	
160	3-358-227-01	SPRING, LEAF	
∗161	1-647-784-11	LEAF SW (A) BOARD (DECK:A)	
∗161	1-647-785-11	LEAF SW (A) BOARD (DECK:B)	
∗162	X-3358-216-1	BRACKET (FH) ASSY	
163	X-3358-205-1	FLYWHEEL (A) ASSY (DECK:A)	
163	X-3366-859-1	FLYWHEEL (D) ASSY (DECK:B)	
∗164	X-3358-215-1	CHASSIS (B) ASSY	
∗165	3-358-216-01	COLLAR (DECK:A)	
166	3-358-278-01	SPRING (LOADING FH), TORSION	
167	3-371-917-01	SHAFT (BUTTON SHAFT 4)	
168	X-3358-204-1	LEVER (PINCH LEVER) ASSY	
169	3-578-143-11	PINCH ROLLER	

5-5. MECHANISM DECK SECTION-3
(TCM-180VW-N6)


215
DECK : B
212
214
213
211
217
DECK : B
216
210
218 DECK : B
DECK : A
219
209 DECK : A
223
222
224
221
220 DECK : B
DECK : B
HE1
208
#12
225
203
202
207
204
201
205
206
HRP1 : DECK B
HP1 : DECK A

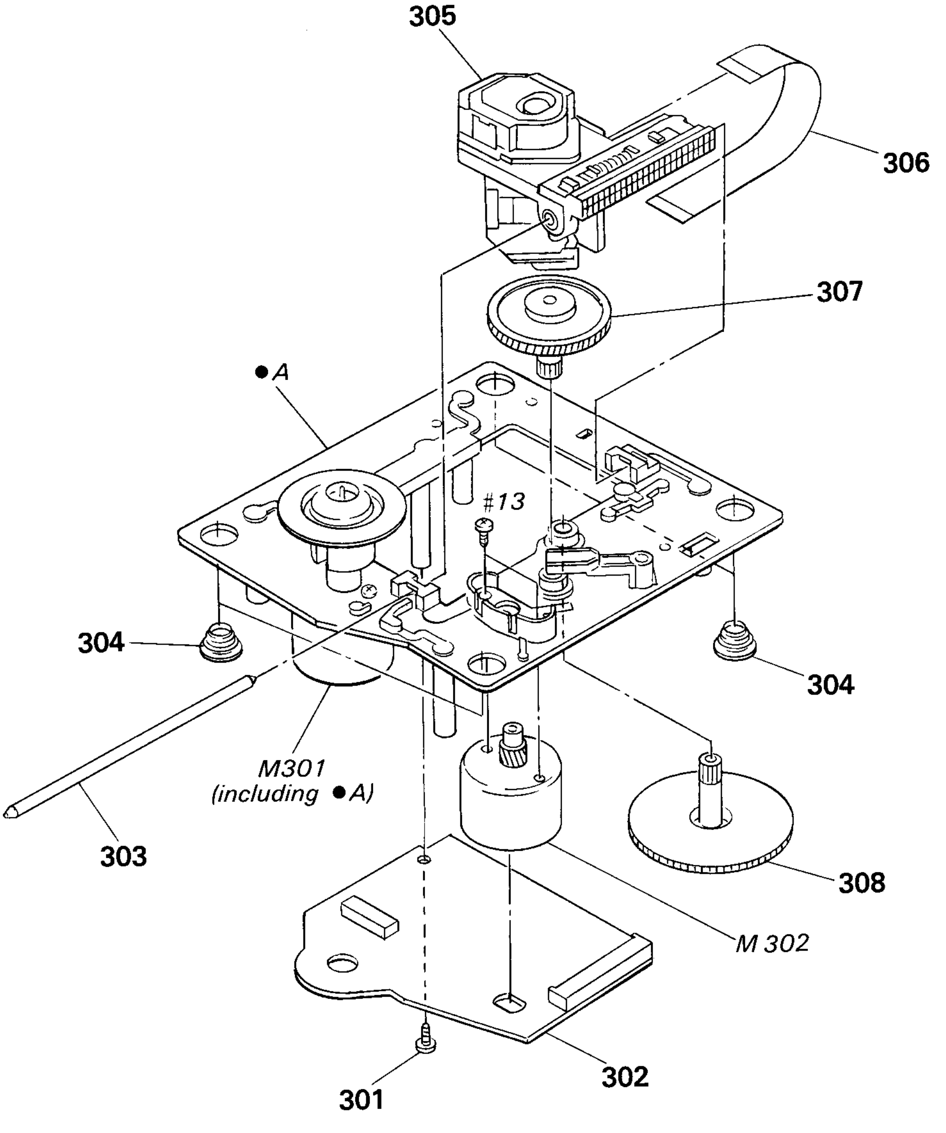
Ref.No.	Part No.	Description	Remark
*201	3-358-253-01	LEVER (SHUT-OFF LEVER)	
202	3-358-265-01	SLIDER (HEAD PC BOARD A)	
*203	3-358-251-01	LEVER (TENSION DETECTION ARM)	
204	3-358-228-01	SPRING, TORSION	
*205	3-358-215-01	BUSHING (WIRE KIT RETAINER)	
206	3-358-288-01	SCREW (T), AZIMUTH	
207	3-358-288-11	SCREW (T), AZIMUTH	
208	3-358-234-01	SPRING (AZIMUTH), COMPRESSION	
*209	3-363-931-01	GUIDE, TAPE (DECK:A)	
*210	3-358-255-01	LEVER (GB LEVER) (DECK B)	
211	3-358-286-01	LEVER (MOTOR LEVER)	
*212	3-358-204-01	LEVER (REC SAFETY) (DECK:B)	
213	3-358-214-01	SPRING (LOCK), TORSION (DECK:A)	
213	3-358-233-01	SPRING (REC-LOCK), TORSION (DECK B)	
214	X-3358-202-1	LEVER (FR ARM) ASSY	
215	3-358-230-01	BELT (A1)	
216	3-358-259-01	SLIDER (REC) (DECK B)	
*217	3-358-249-01	SLIDER (LOCK PLATE)	
*218	3-358-226-01	LEVER (PAUSE LEVER) (DECK:B)	
219	3-358-279-01	SPRING (STOP), TORSION (DECK:A)	
220	3-358-260-01	SLIDER (PAUSE) (DECK:B)	
221	3-358-256-01	SLIDER (STOP/EJECT) (DECK:B)	
222	3-358-257-01	SLIDER (FF)	
223	3-358-258-01	SLIDER (REW)	
224	3-358-232-01	SPRING (S-P F-R), TORSION	
225	3-358-281-01	SLIDER (HOLDER LOCK FH)	
HE1	1-543-673-11	HEAD, MAGNETIC (ERASE) (DECK:B)	
HP1	1-543-319-11	HEAD, MAGNETIC (PB) (DECK:A)	
HRP1	1-543-319-11	HEAD, MAGNETIC (REC/PB) (DECK:B)	

5-6. CD MECHANISM SECTION-1 (CDM28-5BD10D)


256
254
255
253
(including ●A)
#9
257
258
259
252
260
#9
M151
●A
BU-5BD10D
263
#9
261
251
262

Ref.No.	Part No.	Description	Remark
251	4-960-836-01	TABLE, DISK	
252	4-960-835-01	HOLDER (M)	
253	1-452-719-11	MAGNET ASSY	
254	4-960-842-01	GEAR (P)	
255	4-960-841-01	PULLEY (S)	
256	4-927-649-01	BELT	
*257	4-960-839-01	CAM	
258	4-960-838-01	BASE (MD)	
*259	4-917-583-21	BRACKET, YOKE	
260	4-933-134-01	SCREW (+PTPWH M2.6X6)	
261	4-959-996-01	SPRING (932), COMPRESSION	
262	4-960-834-01	HOLDER (BU)	
*263	1-650-836-11	LOADING BOARD	
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)	

5-7. CD MECHANISM SECTION-2
(BU-5BD10D)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les components identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description	Remark
301	4-951-620-11	SCREW (2.6X10), +BVTP	
*302	A-4673-015-A	BD BORD, COMPLETE	
303	4-917-565-01	SHAFT, SLED	
304	4-951-940-01	INSULATOR (BU)	
⚠305	8-848-144-11	DEVICE, OPTICAL KSS-240A	

Ref.No.	Part No.	Description	Remark
306	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
307	4-917-567-01	GEAR (M)	
308	4-917-564-01	GEAR (P), FLATNESS	
M301	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M302	X-4917-504-1	MOTOR ASSY (SLED)	

SECTION 6
ELECTRICAL PARTS LIST

BD

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example:
  uA··· : μA···, uPA··· : μPA···, uPB··· : μPB···,
  uPC··· : μPC···, uPD··· : μPD···
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Abbreviations
  CND: Canadian
  IT: Italian
  G: German
  EE: East European
  EA: Saudi Arabia
  SP: Singapore
  MY: Malaysia
  AUS: Australian

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les components identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref.No.	Part No.	Description			Remark
	A-4673-015-A	BD BOARD, COMPLETE			
		******************			
		< CAPACITOR >			
C101	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C102	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C103	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C105	1-135-155-21	TANTAL. CHIP	4.7MF	20%	10V
C106	1-164-346-11	CERAMIC CHIP	1MF		16V
C107	1-164-505-11	CERAMIC CHIP	2.2MF		16V
C108	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C109	1-163-011-11	CERAMIC CHIP	0.0015MF	10%	50V
C110	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C111	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C112	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C113	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C114	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C115	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C123	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C124	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C151	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C152	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C153	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C154	1-164-336-11	CERAMIC CHIP	0.33MF		25V
C155	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C156	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C157	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C158	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C159	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C160	1-163-019-00	CERAMIC CHIP	0.0063MF	10%	50V
C161	1-163-038-11	CERAMIC CHIP	0.1MF		25V
		< CONNECTOR >			
*CN101	1-568-865-11	SOCKET, CONNECTOR 23P			
CN102	1-568-795-11	SOCKET, CONNECTOR 12P			
		< IC >			
IC101	8-752-351-94	IC CXD2515Q			
IC102	8-759-071-79	IC BA6297AFP			

Ref.No.	Part No.	Description			Remark
		< RESISTOR >			
R101	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R102	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R103	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R104	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R105	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R106	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R107	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R108	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R109	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R110	1-216-025-00	METAL GLAZE	100	5%	1/10W
R112	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R113	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R114	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R117	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R118	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R121	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R122	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R123	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R124	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R125	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R126	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R127	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R131	1-216-037-00	METAL GLAZE	330	5%	1/10W
R151	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R152	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R153	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R154	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R155	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R156	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R157	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R158	1-216-076-00	METAL GLAZE	13K	5%	1/10W
R159	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R160	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R161	1-216-308-00	METAL GLAZE	4.7	5%	1/10W
R162	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R163	1-216-093-00	METAL GLAZE	68K	5%	1/10W

Ref.No.	Part No.	Description	Remark
		< SWITCH >	
S101	1-572-085-11	SWITCH, LEAF (LIMIT)	
		< VIBRATOR >	
X101	1-567-908-11	VIBRATOR, CRYSTAL (16.9MHz)	

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*	A-4369-113-A	CD SW BOARD, COMPLETE	(H450:AEP,G,IT/H450M:US,CND,AEP,EE)
*	A-4369-105-A	CD SW BOARD, COMPLETE	(H450:UK)
*	A-4369-112-A	CD SW BOARD, COMPLETE	(H450:E,AUS,EA,MY,SP)

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		< CAPACITOR >	
C310	1-162-294-31	CERAMIC 0.001uF 10% 50V	(H450:E,AUS,EA,MY,SP)
C372	1-162-294-31	CERAMIC 0.001uF 10% 50V	(H450:E,AUS,EA,MY,SP)
C373	1-162-294-31	CERAMIC 0.001uF 10% 50V	(H450:E,AUS,EA,MY,SP)
C374	1-124-464-11	ELECT 0.22uF 20% 50V	(H450:E,AUS,EA,MY,SP)
C375	1-124-903-11	ELECT 1uF 20% 50V	(H450:E,AUS,EA,MY,SP)
C376	1-126-933-11	ELECT 100uF 20% 16V	(H450:E,AUS,EA,MY,SP)
C377	1-161-377-00	CERAMIC 0.0047uF 30% 16V	(H450:E,AUS,EA,MY,SP)
C378	1-164-159-11	CERAMIC 0.1uF 50V	(H450:E,AUS,EA,MY,SP)
		< CONNECTOR >	
*CN351	1-569-768-11	SOCKET, CONNECTOR 7P	
		< JACK >	
J351	1-563-935-31	JACK, STEREO HEADPHONE (MIX MIC)	(H450:E,AUS,EA,MY,SP)
		< TRANSISTOR >	
Q371	8-729-119-78	TRANSISTOR 2SC2785-HFE	(H450:E,AUS,EA,MY,SP)
Q372	8-729-119-78	TRANSISTOR 2SC2785-HFE	(H450:E,AUS,EA,MY,SP)
		< RESISTOR >	
R352	1-249-417-11	CARBON 1K 5% 1/4W	
R353	1-249-418-11	CARBON 1.2K 5% 1/4W	
R354	1-249-418-11	CARBON 1.2K 5% 1/4W	
R356	1-249-417-11	CARBON 1K 5% 1/4W	
R357	1-249-418-11	CARBON 1.2K 5% 1/4W	

Ref.No.	Part No.	Description	Remark
R358	1-249-418-11	CARBON 1.2K 5% 1/4W	
R359	1-249-419-11	CARBON 1.5K 5% 1/4W	
R361	1-249-417-11	CARBON 1K 5% 1/4W	
R362	1-249-418-11	CARBON 1.2K 5% 1/4W	
R363	1-249-418-11	CARBON 1.2K 5% 1/4W	
R364	1-249-419-11	CARBON 1.5K 5% 1/4W	
R373	1-249-437-11	CARBON 47K 5% 1/4W	(H450:E,AUS,EA,MY,SP)
R374	1-249-415-11	CARBON 680 5% 1/4W	(H450:E,AUS,EA,MY,SP)
R376	1-247-807-31	CARBON 100 5% 1/4W	(H450:E,AUS,EA,MY,SP)
R377	1-247-891-00	CARBON 330K 5% 1/4W	(H450:E,AUS,EA,MY,SP)
R378	1-249-426-11	CARBON 5.6K 5% 1/4W	(H450:E,AUS,EA,MY,SP)
R379	1-249-410-11	CARBON 270 5% 1/4W	(H450:E,AUS,EA,MY,SP)
R380	1-249-441-11	CARBON 100K 5% 1/4W	(H450:E,AUS,EA,MY,SP)
R381	1-249-425-11	CARBON 4.7K 5% 1/4W	(H450:E,AUS,EA,MY,SP)
		< SWITCH >	
S351	1-571-760-11	SWITCH, KEY BOARD (□)	
S352	1-571-760-11	SWITCH, KEY BOARD (▷)	
S353	1-571-760-11	SWITCH, KEY BOARD (▯▯)	
S354	1-571-760-11	SWITCH, KEY BOARD (▷▷❙ / ▷▷)	
S355	1-571-760-11	SWITCH, KEY BOARD (⏏ OPEN/CLOSE)	
S356	1-571-760-11	SWITCH, KEY BOARD (❙◁◁ / ◁◁)	
S357	1-571-760-11	SWITCH, KEY BOARD (PROGRAM)	
S358	1-571-760-11	SWITCH, KEY BOARD (REPEAT)	
S359	1-571-760-11	SWITCH, KEY BOARD (EDIT)	
S360	1-571-760-11	SWITCH, KEY BOARD (CONTINUE)	
S361	1-571-760-11	SWITCH, KEY BOARD (SHUFFLE)	
S362	1-571-760-11	SWITCH, KEY BOARD (TIME)	
S363	1-571-760-11	SWITCH, KEY BOARD (CLEAR)	
S364	1-571-760-11	SWITCH, KEY BOARD (CHECK)	

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*	A-4369-103-A	DISPLAY BOARD, COMPLETE	(H450M:UK)
*	A-4369-108-A	DISPLAY BOARD, COMPLETE	(H450M:US)
*	A-4369-109-A	DISPLAY BOARD, COMPLETE	(H450:AEP/H450M:AEP)
*	A-4369-117-A	DISPLAY BOARD, COMPLETE	(H450:E,AUS,EA,EA,MY,SP)
*	A-4369-118-A	DISPLAY BOARD, COMPLETE	(H450:G)
*	A-4369-119-A	DISPLAY BOARD, COMPLETE	(H450:IT)
*	A-4371-234-A	DISPLAY BOARD, COMPLETE	(H450M:CND)
*	A-4371-090-A	DISPLAY BOARD, COMPLETE	(H450M:EE)

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*	4-932-810-11	CUSHION (FL)	
*	4-942-301-01	HOLDER, FL TUBE	
		< CAPACITOR >	
C530	1-126-157-11	ELECT 10uF 20% 16V	
C531	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C532	1-126-157-11	ELECT 10uF 20% 16V	
C533	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C540	1-161-379-00	CERAMIC 0.01uF 20% 25V	

DISPLAY

Ref.No.	Part No.	Description			Remark
C541	1-164-159-11	CERAMIC	0.1uF		50V
C542	1-164-159-11	CERAMIC	0.1uF		50V
C543	1-104-905-11	CAP, DOUBLE LAYERS	0.22F		
C544	1-164-159-11	CERAMIC	0.1uF		50V
C545	1-126-157-11	ELECT	10uF	20%	16V
C560	1-164-159-11	CERAMIC	0.1uF		50V
C561	1-164-159-11	CERAMIC	0.1uF		50V
C562	1-162-286-31	CERAMIC	220PF	10%	50V
C563	1-162-286-31	CERAMIC	220PF	10%	50V
C564	1-162-286-31	CERAMIC	220PF	10%	50V
C565	1-162-286-31	CERAMIC	220PF	10%	50V
C566	1-162-286-31	CERAMIC	220PF	10%	50V
C567	1-162-286-31	CERAMIC	220PF	10%	50V
C568	1-162-286-31	CERAMIC	220PF	10%	50V
C569	1-162-286-31	CERAMIC	220PF	10%	50V
C570	1-162-286-31	CERAMIC	220PF	10%	50V
C571	1-162-286-31	CERAMIC	220PF	10%	50V
C572	1-162-286-31	CERAMIC	220PF	10%	50V
C573	1-162-286-31	CERAMIC	220PF	10%	50V
C574	1-162-286-31	CERAMIC	220PF	10%	50V
C575	1-162-286-31	CERAMIC	220PF	10%	50V
C576	1-162-286-31	CERAMIC	220PF	10%	50V
C577	1-162-286-31	CERAMIC	220PF	10%	50V
C578	1-162-286-31	CERAMIC	220PF	10%	50V
C579	1-162-286-31	CERAMIC	220PF	10%	50V
C580	1-162-286-31	CERAMIC	220PF	10%	50V
C581	1-162-286-31	CERAMIC	220PF	10%	50V
C582	1-162-286-31	CERAMIC	220PF	10%	50V
C583	1-162-286-31	CERAMIC	220PF	10%	50V
C644	1-164-159-11	CERAMIC	0.1uF		50V
C650	1-161-494-00	CERAMIC	0.022uF		25V
C651	1-161-327-00	CERAMIC	0.0033uF	30%	16V
C652	1-164-159-11	CERAMIC	0.1uF		50V
C653	1-164-159-11	CERAMIC	0.1uF		50V
C654	1-124-252-00	ELECT	0.33uF	20%	50V
C655	1-164-159-11	CERAMIC	0.1uF		50V
C656	1-124-254-00	ELECT	0.68uF	20%	50V
C657	1-162-282-31	CERAMIC	100PF	10%	50V
C658	1-161-374-11	CERAMIC	0.0015uF	20%	50V
C659	1-126-157-11	ELECT	10uF	20%	16V
C670	1-161-494-00	CERAMIC	0.022uF		25V
C671	1-161-327-00	CERAMIC	0.0033uF	30%	16V
C672	1-164-159-11	CERAMIC	0.1uF		50V
C673	1-164-159-11	CERAMIC	0.1uF		50V
C674	1-124-252-00	ELECT	0.33uF	20%	50V
C675	1-164-159-11	CERAMIC	0.1uF		50V
C676	1-124-254-00	ELECT	0.68uF	20%	50V
C677	1-162-282-31	CERAMIC	100PF	10%	50V
C678	1-161-374-11	CERAMIC	0.0015uF	20%	50V

Ref.No.	Part No.	Description			Remark
C679	1-126-157-11	ELECT	10uF	20%	16V
C680	1-126-163-11	ELECT	4.7uF	20%	50V
C682	1-126-157-11	ELECT	10uF	20%	16V
C683	1-126-157-11	ELECT	10uF	20%	16V
C5001	1-161-379-00	CERAMIC	0.01uF	20%	25V

< CONNECTOR >

Ref.No.	Part No.	Description
CN501	1-764-306-11	HOUSING,CONNECTOR(PC BOARD)32P

< DIODE >

Ref.No.	Part No.	Description	
D501	8-719-046-44	DIODE	SEL5221S (TAPE)
D502	8-719-046-44	DIODE	SEL5221S (CD)
D503	8-719-046-44	DIODE	SEL5221S (TUNER)
D504	8-719-046-44	DIODE	SEL5221S (PHONO) (H450:AEP,G,IT/H450M:AEP,EE,UK)
D504	8-719-046-44	DIODE	SEL5221S (VIDEO) (H450:E,AUS,EA,MY,SP/H450M:US,CND)
D505	8-719-046-44	DIODE	SEL5221S (KARAOKE-PON) (H450:E,AUS,EA,MY,SP)
D508	8-719-046-44	DIODE	SEL5221S (ON/STANDBY)
D509	8-719-046-44	DIODE	SEL5221S (DBFB)
D510	8-719-987-63	DIODE	1N4148M (H450:IT/H450M:US,CND)
D511	8-719-987-63	DIODE	1N4148M (H450:G,E,AUS,EA,MY,SP)
D512	8-719-987-63	DIODE	1N4148M (H450M:EE)
D513	8-719-987-63	DIODE	1N4148M (H450:E,AUS,EA,MY,SP)
D514	8-719-987-63	DIODE	1N4148M (H450:E,AUS,EA,MY,SP/H450M:US,CND)
D515	8-719-987-63	DIODE	1N4148M
D530	8-719-987-63	DIODE	1N4148M
D540	8-719-987-63	DIODE	1N4148M
D542	8-719-987-63	DIODE	1N4148M
D650	8-719-987-63	DIODE	1N4148M
D660	8-719-987-63	DIODE	1N4148M
D670	8-719-987-63	DIODE	1N4148M

< FLUORESCENT INDICATOR TUBE >

Ref.No.	Part No.	Description
FL501	1-517-258-11	INDICATOR TUBE, FLUORESCENT

< IC >

Ref.No.	Part No.	Description	
IC501	8-759-248-06	IC	uPD78042GF-053-3B9
IC502	8-749-922-36	IC	GP1U50XB
IC540	8-759-165-80	IC	PST600C-T
IC541	8-759-165-84	IC	PST600G-T
IC604	8-759-256-11	IC	M5243P12

< TRANSISTOR >

Ref.No.	Part No.	Description	
Q501	8-729-900-61	TRANSISTOR	DTA114ES
Q530	8-729-119-78	TRANSISTOR	2SC2785-HFE
Q601	8-729-900-80	TRANSISTOR	DTC114ES

Ref.No.	Part No.	Description	Remark
Q602	8-729-900-61	TRANSISTOR DTA114ES	
Q603	8-729-900-61	TRANSISTOR DTA114ES	
Q650	8-729-202-67	TRANSISTOR 2SK246-GR3	
Q660	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q670	8-729-202-67	TRANSISTOR 2SK246-GR3	
Q680	8-729-119-78	TRANSISTOR 2SC2785-HFE	
		< RESISTOR >	
R501	1-249-419-11	CARBON 1.5K 5% 1/4W	
R502	1-247-807-31	CARBON 100 5% 1/4W	
R503	1-249-406-11	CARBON 120 5% 1/4W	
R504	1-249-406-11	CARBON 120 5% 1/4W	
R505	1-247-811-31	CARBON 150 5% 1/4W	
R506	1-249-408-11	CARBON 180 5% 1/4W	
R507	1-249-409-11	CARBON 220 5% 1/4W	
R508	1-249-410-11	CARBON 270 5% 1/4W	
R511	1-249-419-11	CARBON 1.5K 5% 1/4W	
R513	1-247-807-31	CARBON 100 5% 1/4W	
R514	1-249-406-11	CARBON 120 5% 1/4W	
R515	1-249-406-11	CARBON 120 5% 1/4W	
R516	1-247-811-31	CARBON 150 5% 1/4W	
R517	1-249-408-11	CARBON 180 5% 1/4W	(H450:E,AUS,EA,MY,SP)
R520	1-249-409-11	CARBON 220 5% 1/4W	
R521	1-249-416-11	CARBON 820 5% 1/4W	(H450:E,AUS,EA,MY,SP)
R525	1-249-411-11	CARBON 330 5% 1/4W	
R530	1-249-417-11	CARBON 1K 5% 1/4W	
R532	1-249-429-11	CARBON 10K 5% 1/4W	
R533	1-249-425-11	CARBON 4.7K 5% 1/4W	
R534	1-249-429-11	CARBON 10K 5% 1/4W	
R535	1-249-433-11	CARBON 22K 5% 1/4W	
R536	1-249-433-11	CARBON 22K 5% 1/4W	
R539	1-249-441-11	CARBON 100K 5% 1/4W	
R540	1-249-441-11	CARBON 100K 5% 1/4W	
R541	1-249-441-11	CARBON 100K 5% 1/4W	
R542	1-249-441-11	CARBON 100K 5% 1/4W	
R543	1-249-441-11	CARBON 100K 5% 1/4W	
R544	1-249-441-11	CARBON 100K 5% 1/4W	
R545	1-249-441-11	CARBON 100K 5% 1/4W	
R546	1-249-429-11	CARBON 10K 5% 1/4W	
R547	1-249-429-11	CARBON 10K 5% 1/4W	
R548	1-249-429-11	CARBON 10K 5% 1/4W	
R552	1-249-425-11	CARBON 4.7K 5% 1/4W	
R553	1-249-417-11	CARBON 1K 5% 1/4W	
R554	1-249-425-11	CARBON 4.7K 5% 1/4W	
R555	1-249-425-11	CARBON 4.7K 5% 1/4W	
R560	1-247-807-31	CARBON 100 5% 1/4W	
R561	1-247-807-31	CARBON 100 5% 1/4W	
R562	1-247-807-31	CARBON 100 5% 1/4W	
R563	1-247-807-31	CARBON 100 5% 1/4W	
R564	1-247-807-31	CARBON 100 5% 1/4W	
R565	1-247-807-31	CARBON 100 5% 1/4W	
R566	1-247-807-31	CARBON 100 5% 1/4W	
R567	1-247-807-31	CARBON 100 5% 1/4W	
R568	1-247-807-31	CARBON 100 5% 1/4W	
R569	1-247-807-31	CARBON 100 5% 1/4W	
R570	1-247-807-31	CARBON 100 5% 1/4W	
R571	1-247-807-31	CARBON 100 5% 1/4W	
R572	1-247-807-31	CARBON 100 5% 1/4W	
R573	1-247-807-31	CARBON 100 5% 1/4W	
R574	1-247-807-31	CARBON 100 5% 1/4W	
R575	1-247-807-31	CARBON 100 5% 1/4W	
R576	1-247-807-31	CARBON 100 5% 1/4W	
R577	1-247-807-31	CARBON 100 5% 1/4W	
R640	1-249-424-11	CARBON 3.9K 5% 1/4W	
R641	1-249-424-11	CARBON 3.9K 5% 1/4W	
R650	1-249-419-11	CARBON 1.5K 5% 1/4W	
R651	1-249-441-11	CARBON 100K 5% 1/4W	
R652	1-249-441-11	CARBON 100K 5% 1/4W	
R653	1-247-807-31	CARBON 100 5% 1/4W	
R654	1-249-424-11	CARBON 3.9K 5% 1/4W	
R655	1-247-903-00	CARBON 1M 5% 1/4W	
R660	1-249-417-11	CARBON 1K 5% 1/4W	
R661	1-249-421-11	CARBON 2.2K 5% 1/4W	
R670	1-249-419-11	CARBON 1.5K 5% 1/4W	
R671	1-249-441-11	CARBON 100K 5% 1/4W	
R672	1-249-441-11	CARBON 100K 5% 1/4W	
R673	1-247-807-31	CARBON 100 5% 1/4W	
R674	1-249-424-11	CARBON 3.9K 5% 1/4W	
R675	1-247-903-00	CARBON 1M 5% 1/4W	
R680	1-249-417-11	CARBON 1K 5% 1/4W	
R681	1-249-421-11	CARBON 2.2K 5% 1/4W	
R690	1-249-417-11	CARBON 1K 5% 1/4W	
R691	1-249-429-11	CARBON 10K 5% 1/4W	
R692	1-249-423-11	CARBON 3.3K 5% 1/4W	
R694	1-247-891-00	CARBON 330K 5% 1/4W	
R695	1-249-421-11	CARBON 2.2K 5% 1/4W	
		< VARIABLE RESISTOR >	
RV601	1-223-296-11	RES, VAR, SLIDE 250K/250K (100Hz)	
RV602	1-223-296-11	RES, VAR, SLIDE 250K/250K (1kHz)	
RV603	1-223-296-11	RES, VAR, SLIDE 250K/250K (10kHz)	
		< SWITCH >	
S401	1-692-883-11	SWITCH, SLIDE (DOLBY)	(H450:AEP,G,IT/H450M:CND,AEP,EE,UK)

DISPLAY | LEAF SW(A) | LEAF SW(B) | LOADING | MAIN

Ref.No.	Part No.	Description	Remark
S501	1-571-760-11	SWITCH, KEY BOARD (SYSTEM POWER)	
S502	1-571-760-11	SWITCH, KEY BOARD (MEMORY)	
S503	1-571-760-11	SWITCH, KEY BOARD (MONO)	
S504	1-571-760-11	SWITCH, KEY BOARD (TAPE)	
S505	1-571-760-11	SWITCH, KEY BOARD (CD)	
S506	1-571-760-11	SWITCH, KEY BOARD (TUNER)	
S507	1-571-760-11	SWITCH, KEY BOARD (VIDEO)	(H450:E,AUS,EA,MY,SP/H450M:US,CND)
S507	1-571-760-11	SWITCH, KEY BOARD (PHONO)	(H450:AEP,G,IT/H450M:AEP,EE,UK)
S508	1-571-760-11	SWITCH, KEY BOARD (PRESET/TUNING)	
S511	1-571-760-11	SWITCH, KEY BOARD (BAND)	
S512	1-571-760-11	SWITCH, KEY BOARD (SHIFT)	
S513	1-571-760-11	SWITCH, KEY BOARD (TUNER -)	
S514	1-571-760-11	SWITCH, KEY BOARD (TUNER +)	
S515	1-571-760-11	SWITCH, KEY BOARD (DBFB)	
S516	1-571-760-11	SWITCH, KEY BOARD (KARAOKE PON)	(H450:E,AUS,EA,MY,SP)
		< VIBRATOR >	
X501	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)	

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Ref.No.	Part No.	Description	Remark
*	1-647-784-11	LEAF SW (A) BOARD *****************	
		< CONNECTOR >	
*CN1001	1-568-943-11	PIN, CONNECTOR 5P	
		< SWITCH >	
S1001	1-571-736-11	SWITCH, LEAF (A MOTOR)	
S1002	1-571-736-11	SWITCH, LEAF (A PLAY)	
S1004	1-572-335-11	SWITCH, LEAF (A CrO2)	

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Ref.No.	Part No.	Description	Remark
*	1-647-785-11	LEAF SW (B) BOARD *****************	
		< CONNECTOR >	
*CN2001	1-568-944-11	PIN, CONNECTOR 6P	
		< SWITCH >	
S2001	1-571-736-11	SWITCH, LEAF (B MOTOR)	
S2002	1-571-736-11	SWITCH, LEAF (B PLAY)	
S2003	1-571-736-11	SWITCH, LEAF (B REC)	
S2004	1-572-335-11	SWITCH, LEAF (B CrO2)	

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Ref.No.	Part No.	Description	Remark
*	1-650-836-11	LOADING BOARD *************	
		< CONNECTOR >	
*CN291	1-568-943-11	PIN, CONNECTOR 5P	
		< SWITCH >	
S291	1-572-086-11	SWITCH, LEAF (LOAD OUT)	
S292	1-572-086-11	SWITCH, LEAF (LOAD IN)	

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Ref.No.	Part No.	Description	Remark
*	A-4369-102-A	MAIN BOARD, COMPLETE (H450M:UK)	
*	A-4369-106-A	MAIN BOARD, COMPLETE (H450M:US)	
*	A-4369-107-A	MAIN BOARD, COMPLETE (H450:AEP/H450M:AEP)	
*	A-4369-114-A	MAIN BOARD, COMPLETE (H450:E,AUS,EA,MY,SP)	
*	A-4369-115-A	MAIN BOARD, COMPLETE (H450:G,IT)	
*	A-4371-091-A	MAIN BOARD, COMPLETE (H450M:EE)	
*	A-4371-218-A	MAIN BOARD, COMPLETE (H450M:CND) ********************************	
*	4-925-530-01	PLATE, GROUND (H450/H450M:AEP)	
		< ANTENNA >	
ANT1	1-501-321-51	ANTENNA TELESCOPIC (H450)	
		< CAPACITOR >	
C1	1-162-195-31	CERAMIC 4.7PF 10% 50V	(H450/H450M:AEP)
C2	1-126-964-11	ELECT 10uF 20% 50V	
C3	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C5	1-164-159-11	CERAMIC 0.1uF 50V	
C6	1-164-159-11	CERAMIC 0.1uF 50V	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
C7	1-162-198-31	CERAMIC 8.2PF 10% 50V	
C8	1-164-159-11	CERAMIC 0.1uF 50V	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
C9	1-162-280-31	CERAMIC 82PF 10% 50V	(H450:AEP/H450M:AEP,EE,UK)
C9	1-162-195-31	CERAMIC 4.7PF 10% 50V	(H450:E,AUS,EA,MY,SP)
C10	1-164-159-11	CERAMIC 0.1uF 50V	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
C11	1-136-162-00	FILM 0.056uF 5% 50V	(H450:E,AUS,EA,MY,SP)

Ref.No.	Part No.	Description				Remark
C12	1-102-120-00	CERAMIC	0.0018uF	10%	50V	(H450:AEP/H450M:AEP,EE,UK)
C13	1-161-374-11	CERAMIC	0.0015uF	20%	50V	(H450:AEP/H450M:AEP,EE,UK)
C15	1-161-379-00	CERAMIC	0.01uF	20%	25V	(H450:E,AUS,EA,MY,SP)
C21	1-162-205-31	CERAMIC	18PF	5%	50V	
C22	1-162-205-31	CERAMIC	18PF	5%	50V	
C23	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C24	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C25	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C26	1-126-964-11	ELECT	10uF	20%	50V	
C27	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C28	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C29	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C30	1-126-964-11	ELECT	10uF	20%	50V	
C31	1-124-925-11	ELECT	2.2uF	20%	100V	
C32	1-136-153-00	FILM	0.01uF	5%	50V	
C33	1-124-463-00	ELECT	0.1uF	20%	50V	
C34	1-124-902-00	ELECT	0.47uF	20%	50V	(H450:AEP/H450M:AEP,EE,UK)
C35	1-136-157-00	FILM	0.022uF	5%	50V	(H450:AEP/H450M:AEP,EE,UK)
C36	1-136-157-00	FILM	0.022uF	5%	50V	(H450:AEP/H450M:AEP,EE,UK)
C51	1-126-964-11	ELECT	10uF	20%	50V	
C52	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C53	1-162-282-31	CERAMIC	100PF	10%	50V	
C54	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C55	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C57	1-124-925-11	ELECT	2.2uF	20%	100V	
C58	1-124-903-11	ELECT	1uF	20%	50V	
C59	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C60	1-124-903-11	ELECT	1uF	20%	50V	
C61	1-137-438-11	FILM	0.0082uF	5%	50V	(H450:AEP,G,IT/H450M:AEP,EE,UK)
C61	1-136-155-00	FILM	0.015uF	5%	50V	(H450:E,AUS,EA,MY,SP/H450M:CND)
C61	1-136-157-00	FILM	0.022uF	5%	50V	(H450M:US)
C62	1-137-438-11	FILM	0.0082uF	5%	50V	(H450:AEP,G,IT/H450M:AEP,EE,UK)
C62	1-136-155-00	FILM	0.015uF	5%	50V	(H450:E,AUS,EA,MY,SP/H450M:CND)
C62	1-136-157-00	FILM	0.022uF	5%	50V	(H450M:US)
C63	1-124-903-11	ELECT	1uF	20%	50V	
C64	1-124-903-11	ELECT	1uF	20%	50V	
C68	1-161-377-00	CERAMIC	0.0047uF	30%	16V	(H450:AEP,G,IT/H450M:CND,AEP,EE,UK)
C69	1-161-377-00	CERAMIC	0.0047uF	30%	16V	(H450:AEP,G,IT/H450M:CND,AEP,EE,UK)
C73	1-124-903-11	ELECT	1uF	20%	50V	
C74	1-162-293-31	CERAMIC	820PF	10%	50V	(H450:AEP,E,AUS,EA,MY,SP/H450M)
C74	1-162-291-31	CERAMIC	560PF	10%	50V	(H450:G,IT)
C75	1-161-377-00	CERAMIC	0.0047uF	30%	16V	
C76	1-126-233-11	ELECT	22uF	20%	50V	
C77	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C78	1-123-382-00	ELECT	3.3uF	20%	100V	
C79	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C80	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C81	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C82	1-162-207-31	CERAMIC	22PF	5%	50V	
C92	1-126-964-11	ELECT	10uF	20%	50V	
C94	1-164-159-11	CERAMIC	0.1uF		50V	
C95	1-164-159-11	CERAMIC	0.1uF		50V	(H450:AEP,E,AUS,EA,MY,SP/H450M)
C201	1-136-153-00	FILM	0.01uF	5%	50V	
C202	1-164-159-11	CERAMIC	0.1uF		50V	
C203	1-137-434-11	FILM	0.0018uF	5%	50V	
C204	1-126-964-11	ELECT	10uF	20%	50V	
C205	1-136-155-00	FILM	0.015uF	5%	50V	
C206	1-137-364-11	FILM	0.001uF	5%	50V	
C207	1-126-947-11	ELECT	47uF	20%	35V	
C208	1-164-159-11	CERAMIC	0.1uF		50V	
C209	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C251	1-136-153-00	FILM	0.01uF	5%	50V	
C252	1-164-159-11	CERAMIC	0.1uF		50V	
C253	1-137-434-11	FILM	0.0018uF	5%	50V	
C254	1-126-964-11	ELECT	10uF	20%	50V	
C255	1-136-155-00	FILM	0.015uF	5%	50V	
C256	1-137-364-11	FILM	0.001uF	5%	50V	
C257	1-126-947-11	ELECT	47uF	20%	35V	
C258	1-164-159-11	CERAMIC	0.1uF		50V	
C259	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C260	1-162-290-31	CERAMIC	470PF	10%	50V	
C261	1-164-159-11	CERAMIC	0.1uF		50V	
C278	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C279	1-161-494-00	CERAMIC	0.022uF		25V	
C282	1-164-159-11	CERAMIC	0.1uF		50V	
C283	1-126-964-11	ELECT	10uF	20%	50V	
C284	1-164-159-11	CERAMIC	0.1uF		50V	
C285	1-164-159-11	CERAMIC	0.1uF		50V	
C291	1-124-927-11	ELECT	4.7uF	20%	100V	
C292	1-124-927-11	ELECT	4.7uF	20%	100V	
C293	1-126-926-11	ELECT	1000uF	20%	10V	
C294	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C295	1-126-964-11	ELECT	10uF	20%	50V	
C296	1-126-925-11	ELECT	470uF	20%	10V	

MAIN

Ref.No.	Part No.	Description				Remark
C297	1-126-933-11	ELECT	100uF	20%	16V	
C299	1-126-947-11	ELECT	47uF	20%	35V	
C301	1-162-292-31	CERAMIC	680PF	10%	50V	
C302	1-136-157-00	FILM	0.022uF	5%	50V	
C303	1-126-964-11	ELECT	10uF	20%	50V	
C304	1-162-282-31	CERAMIC	100PF	10%	50V	
C311	1-162-293-31	CERAMIC	820PF	10%	50V	
C312	1-136-157-00	FILM	0.022uF	5%	50V	
C313	1-126-964-11	ELECT	10uF	20%	50V	
C314	1-162-282-31	CERAMIC	100PF	10%	50V	
C315	1-126-933-11	ELECT	100uF	20%	16V	
C321	1-137-368-11	FILM	0.0047uF	5%	50V	
C322	1-124-903-11	ELECT	1uF	20%	50V	
C323	1-124-927-11	ELECT	4.7uF	20%	100V	
C324	1-164-159-11	CERAMIC	0.1uF		50V	
C325	1-126-964-11	ELECT	10uF	20%	50V	
C326	1-124-903-11	ELECT	1uF	20%	50V	
C327	1-124-902-00	ELECT	0.47uF	20%	50V	
C328	1-124-927-11	ELECT	4.7uF	20%	100V	
C329	1-162-291-31	CERAMIC	560PF	10%	50V	
C330	1-161-374-11	CERAMIC	0.0015uF	20%	50V	
C331	1-162-209-31	CERAMIC	27PF	5%	50V	
C332	1-162-279-31	CERAMIC	75PF	10%	50V	
C333	1-162-288-31	CERAMIC	330PF	10%	50V	
C334	1-162-283-31	CERAMIC	120PF	10%	50V	
C335	1-162-286-31	CERAMIC	220PF	10%	50V	
C351	1-126-947-11	ELECT	47uF	20%	35V	
C352	1-161-494-00	CERAMIC	0.022uF		25V	
C401	1-162-292-31	CERAMIC	680PF	10%	50V	
C402	1-136-157-00	FILM	0.022uF	5%	50V	
C403	1-126-964-11	ELECT	10uF	20%	50V	
C404	1-162-282-31	CERAMIC	100PF	10%	50V	
C411	1-162-293-31	CERAMIC	820PF	10%	50V	
C412	1-136-157-00	FILM	0.022uF	5%	50V	
C413	1-126-964-11	ELECT	10uF	20%	50V	
C414	1-162-282-31	CERAMIC	100PF	10%	50V	
C415	1-126-933-11	ELECT	100uF	20%	16V	
C421	1-137-368-11	FILM	0.0047uF	5%	50V	
C422	1-124-903-11	ELECT	1uF	20%	50V	
C423	1-124-927-11	ELECT	4.7uF	20%	100V	
C424	1-164-159-11	CERAMIC	0.1uF		50V	
C425	1-126-964-11	ELECT	10uF	20%	50V	
C426	1-124-903-11	ELECT	1uF	20%	50V	
C427	1-124-902-00	ELECT	0.47uF	20%	50V	
C428	1-124-927-11	ELECT	4.7uF	20%	100V	
C429	1-162-291-31	CERAMIC	560PF	10%	50V	
C430	1-161-374-11	CERAMIC	0.0015uF	20%	50V	
C431	1-162-209-31	CERAMIC	27PF	5%	50V	
C432	1-162-279-31	CERAMIC	75PF	10%	50V	
C433	1-162-288-31	CERAMIC	330PF	10%	50V	

Ref.No.	Part No.	Description				Remark
C434	1-162-283-31	CERAMIC	120PF	10%	50V	
C435	1-162-286-31	CERAMIC	220PF	10%	50V	
C436	1-162-286-31	CERAMIC	220PF	10%	50V	
C455	1-126-933-11	ELECT	100uF	20%	16V	
C456	1-126-933-11	ELECT	100uF	20%	16V	
C459	1-126-964-11	ELECT	10uF	20%	50V	
C460	1-126-964-11	ELECT	10uF	20%	50V	
C461	1-126-768-11	ELECT	2200uF	20%	16V	
C464	1-126-933-11	ELECT	100uF	20%	16V	
C465	1-126-933-11	ELECT	100uF	20%	16V	
C470	1-164-159-11	CERAMIC	0.1uF		50V	
C471	1-124-925-11	ELECT	2.2uF	20%	100V	
C472	1-136-562-11	FILM	0.0082uF	5%	630V	(H450:AEP/H450M:AEP,EE,UK)
C472	1-136-601-11	FILM	0.01uF	5%	630V	(H450:G,IT,E,AUS,EA,MY,SP/H450M:US,CND)
C473	1-124-925-11	ELECT	2.2uF	20%	100V	
C474	1-137-370-11	FILM	0.01uF	5%	50V	
C475	1-161-329-00	CERAMIC	0.0068uF	30%	16V	
C476	1-137-436-11	FILM	0.0039uF	5%	50V	
C477	1-137-436-11	FILM	0.0039uF	5%	50V	
C478	1-164-159-11	CERAMIC	0.1uF		50V	
C479	1-126-934-11	ELECT	220uF	20%	16V	
C480	1-124-927-11	ELECT	4.7uF	20%	100V	
C481	1-136-555-11	FILM	0.0022uF	5%	630V	(H450:AEP/H450M:AEP,EE,UK)
C482	1-136-555-11	FILM	0.0022uF	5%	630V	(H450:AEP/H450M:AEP,EE,UK)
C491	1-124-927-11	ELECT	4.7uF	20%	100V	
C492	1-124-903-11	ELECT	1uF	20%	50V	
C493	1-124-927-11	ELECT	4.7uF	20%	100V	
C494	1-124-903-11	ELECT	1uF	20%	50V	
C495	1-126-964-11	ELECT	10uF	20%	50V	
C496	1-124-925-11	ELECT	2.2uF	20%	100V	(H450:AEP,G,IT/H450M:CND,AEP,EE,UK)
C620	1-161-377-00	CERAMIC	0.0047uF	30%	16V	(H450:E,AUS,EA,MY,SP)
C621	1-161-329-00	CERAMIC	0.0068uF	30%	16V	(H450:E,AUS,EA,MY,SP)
C622	1-162-282-31	CERAMIC	100PF	10%	50V	
C623	1-162-215-31	CERAMIC	47PF	5%	50V	
C624	1-164-159-11	CERAMIC	0.1uF		50V	
C630	1-161-377-00	CERAMIC	0.0047uF	30%	16V	(H450:E,AUS,EA,MY,SP)
C631	1-161-329-00	CERAMIC	0.0068uF	30%	16V	(H450:E,AUS,EA,MY,SP)
C632	1-162-282-31	CERAMIC	100PF	10%	50V	
C633	1-162-215-31	CERAMIC	47PF	5%	50V	
C634	1-164-159-11	CERAMIC	0.1uF		50V	
C642	1-126-964-11	ELECT	10uF	20%	50V	
C643	1-126-964-11	ELECT	10uF	20%	50V	

Ref.No.	Part No.	Description	Remark
C730	1-164-159-11	CERAMIC 0.1uF 50V	
C734	1-164-159-11	CERAMIC 0.1uF 50V	(H450:G,IT)
C735	1-164-159-11	CERAMIC 0.1uF 50V	(H450:G,IT)
C750	1-162-282-31	CERAMIC 100PF 10% 50V	
C751	1-162-282-31	CERAMIC 100PF 10% 50V	(H450:G,IT)
C752	1-162-282-31	CERAMIC 100PF 10% 50V	(H450:AEP/H450M:AEP,EE,UK)
C752	1-162-294-31	CERAMIC 0.001uF 10% 50V	(H450:G,IT)
C753	1-124-927-11	ELECT 4.7uF 20% 100V	(H450:AEP,G,IT/H450M:AEP,EE,UK)
C754	1-137-437-11	FILM 0.0056uF 5% 50V	(H450:AEP,G,IT/H450M:AEP,EE,UK)
C755	1-137-365-11	FILM 0.0015uF 5% 50V	(H450:AEP,G,IT/H450M:AEP,EE,UK)
C756	1-164-159-11	CERAMIC 0.1uF 50V	(H450:AEP,G,IT/H450M:AEP,EE,UK)
C757	1-124-925-11	ELECT 2.2uF 20% 100V	
C759	1-164-159-11	CERAMIC 0.1uF 50V	
C766	1-164-159-11	CERAMIC 0.1uF 50V	(H450:AEP,G,IT/H450M:AEP,EE,UK)
C770	1-162-282-31	CERAMIC 100PF 10% 50V	
C771	1-162-282-31	CERAMIC 100PF 10% 50V	(H450:G,IT)
C772	1-162-282-31	CERAMIC 100PF 10% 50V	(H450:AEP/H450M:AEP,EE,UK)
C772	1-162-294-31	CERAMIC 0.001uF 10% 50V	(H450:G,IT)
C773	1-124-927-11	ELECT 4.7uF 20% 100V	(H450:AEP,G,IT/H450M:AEP,EE,UK)
C774	1-137-437-11	FILM 0.0056uF 5% 50V	(H450:AEP,G,IT/H450M:AEP,EE,UK)
C775	1-137-365-11	FILM 0.0015uF 5% 50V	(H450:AEP,G,IT/H450M:AEP,EE,UK)
C777	1-124-925-11	ELECT 2.2uF 20% 100V	
C779	1-164-159-11	CERAMIC 0.1uF 50V	
C797	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C1001	1-162-205-31	CERAMIC 18PF 5% 50V	
C1002	1-161-379-00	CERAMIC 0.01uF 20% 25V	(H450:E,AUS,EA,MY,SP)
C1003	1-124-477-11	ELECT 47uF 20% 25V	(H450:E,AUS,EA,MY,SP)
C1004	1-164-159-11	CERAMIC 0.1uF 50V	(H450:E,AUS,EA,MY,SP)
C1005	1-161-379-00	CERAMIC 0.01uF 20% 25V	(H450:E,AUS,EA,MY,SP)
C1006	1-161-379-00	CERAMIC 0.01uF 20% 25V	(H450:E,AUS,EA,MY,SP)
C1007	1-126-933-11	ELECT 100uF 20% 16V	(H450:E,AUS,EA,MY,SP)
C1008	1-162-282-31	CERAMIC 100PF 10% 50V	
C1009	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C2002	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C2003	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C2004	1-161-379-00	CERAMIC 0.01uF 20% 25V	

Ref.No.	Part No.	Description	Remark
C2005	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C2006	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C2007	1-164-159-11	CERAMIC 0.1uF 50V	
C4003	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C6001	1-162-282-31	CERAMIC 100PF 10% 50V	(H450:AEP,G,IT/H450M:CND,AEP,EE,UK)
C8001	1-162-282-31	CERAMIC 100PF 10% 50V	(H450:G,IT)
C8002	1-124-122-11	ELECT 100uF 20% 50V	
C8003	1-124-122-11	ELECT 100uF 20% 50V	
C8051	1-162-282-31	CERAMIC 100PF 10% 50V	(H450:G,IT)

< FILTER >

Ref.No.	Part No.	Description	Remark
CF1	1-567-389-11	FILTER, CERAMIC	
CF2	1-567-389-11	FILTER, CERAMIC	(H450:G,IT)
CF51	1-567-389-11	FILTER, CERAMIC	

< CONNECTOR >

Ref.No.	Part No.	Description	Remark
*CN201	1-568-839-11	SOCKET, CONNECTOR 23P	
*CN202	1-568-954-11	PIN, CONNECTOR 5P	
*CN251	1-569-779-11	PLUG, CONNECTOR 7P	
*CN301	1-564-507-11	PLUG, CONNECTOR 4P	
*CN302	1-564-509-11	PLUG, CONNECTOR 6P	
CN303	1-564-505-11	PLUG, CONNECTOR 2P	
*CN304	1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P	
*CN411	1-568-449-11	HOUSING, CONNECTOR(PC BOARD)3P	
*CN412	1-568-449-11	HOUSING, CONNECTOR(PC BOARD)3P	
CN601	1-764-294-11	PIN, CONNECTOR (PC BOARD) 32P	
CN602	1-695-693-11	CONNECTOR, FFC/FPC 9P	

< VARIABLE CAPACITOR >

Ref.No.	Part No.	Description	Remark
CV1	1-141-227-00	CAP, TRIMMER 20PF	(H450:E,AUS,EA,MY,SP)
CV2	1-141-227-00	CAP, TRIMMER 20PF	(H450:E,AUS,EA,MY,SP)

< DIODE >

Ref.No.	Part No.	Description	Remark
D1	8-719-976-30	DIODE KV1560N	(H450:E,AUS,EA,MY,SP)
D21	8-719-933-33	DIODE HZS6A1L	
D51	8-719-987-63	DIODE 1N4148M	
D201	8-719-200-82	DIODE 11ES2	
D221	8-719-987-63	DIODE 1N4148M	
D252	8-719-010-33	DIODE UZ-4.7BSB	
D403	8-719-987-63	DIODE 1N4148M	
D404	8-719-987-63	DIODE 1N4148M	
D405	8-719-987-63	DIODE 1N4148M	
D407	8-719-987-63	DIODE 1N4148M	
D408	8-719-987-63	DIODE 1N4148M	
D409	8-719-987-63	DIODE 1N4148M	
D451	8-719-933-33	DIODE HZS6A1L	
D602	8-719-987-63	DIODE 1N4148M	(H450:E,AUS,EA,MY,SP)

MAIN

Ref.No.	Part No.	Description	Remark
		< FERRITE BEAD >	
*FB801	1-410-858-11	INDUCTOR OUH	(H450:G,IT)
*FB851	1-410-858-11	INDUCTOR OUH	(H450:G,IT)
		< FRONTEND >	
FE1	1-465-673-11	FRONT END (2 BAND)	(H450:AEP,E,AUS,EA,MY,SP/H450M:US,CND,AEP)
FE1	1-465-007-11	FRONT END (4 GANG)	(H450:G,IT)
FE1	1-465-396-11	FRONT END (3 GANG)	(H450M:EE)
FE2	1-239-261-12	ENCAPSULATED COMPONENT	(H450:AEP/H450M:AEP, EE,UK)
FE2	1-239-260-11	ENCAPSULATED COMPONENT	(H450:G,IT/H450M:US,CND)
FE2	1-239-262-11	ENCAPSULATED COMPONENT	(H450:E,AUS,EA,MY,SP)
FE3	1-239-846-11	ENCAPSULATED COMPONENT	(H450:AEP/H450M:AEP, EE,UK)
		< IC >	
IC21	8-759-175-87	IC LC7218-ST	
IC51	8-759-090-40	IC LA1831	
IC201	8-759-145-58	IC UPC4558C	
IC202	8-759-145-58	IC UPC4558C	
IC203	8-759-096-75	IC TDA1545P	
IC251	8-759-821-93	IC LA5601	
IC252	8-759-165-80	IC PST600C-T	
IC255	8-759-822-09	IC LB1641	
IC303	8-759-098-73	IC HA12172NT	(H450:AEP,G,IT/H450M:CND,AEP,EE,UK)
IC303	8-759-198-48	IC HA12184NT	(H450:E,AUS,EA,MY,SP/H450M:US)
IC304	8-759-111-44	IC UPC4570C-1	
IC305	8-759-111-44	IC UPC4570C-1	
IC306	8-759-143-54	IC UPC1330HA	
IC351	8-759-248-11	IC TMP87CH46N-4067	
IC407	8-759-240-81	IC TC4081BP	
IC602	8-759-634-50	IC M5218AL	
IC730	8-759-820-62	IC LB1639	
IC750	8-759-634-50	IC M5218AL	(H450:AEP,G,IT/H450M:AEP,EE,UK)
IC751	8-759-000-48	IC MC14052BCP	
		< IFT >	
IFT51	1-404-713-11	TRANSFORMER, IF	
		< JACK >	
J730	1-750-032-11	JACK (DIA. 3.5) (HEAD PHONES)	
J750	1-764-767-11	JACK, PIN 2P (MD/AUX)	(H450:E,AUS,EA,MY,SP/H450M:US,CND)

Ref.No.	Part No.	Description	Remark
J750	1-764-767-11	JACK, PIN 2P (PHONO)	(H450:AEP,G,IT/H450M:AEP,EE,UK)
		< COIL >	
L1	1-408-425-00	INDUCTOR 220uH	(H450:AEP/H450M:AEP,EE,UK)
L2	1-410-521-11	INDUCTOR 100uH	(H450:E,AUS,EA,MY,SP)
L21	1-410-482-31	INDUCTOR 100uH	
L51	1-410-496-11	INDUCTOR 1.5mH	
L201	1-410-521-11	INDUCTOR 100uH	
L202	1-410-521-11	INDUCTOR 100uH	
L301	1-410-780-11	INDUCTOR 27mH	
L401	1-410-780-11	INDUCTOR 27mH	
L451	1-408-429-00	INDUCTOR 470uH	
L1001	1-410-521-11	INDUCTOR 100uH	(H450:G,IT)
L1002	1-410-521-11	INDUCTOR 100uH	(H450:G,IT)
		< FILTER >	
LPF51	1-239-845-11	FILTER, LOW PASS	(H450:AEP,G,IT/H450M:CND,AEP,EE,UK)
LPF52	1-239-845-11	FILTER, LOW PASS	(H450:AEP,G,IT/H450M:CND,AEP,EE,UK)
		< TRANSISTOR >	
Q1	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q2	8-729-230-99	TRANSISTOR 2SC2669-OY	(H450:G,IT)
Q3	8-729-900-61	TRANSISTOR DTA114ES	
Q4	8-729-119-76	TRANSISTOR 2SA1175-HFE	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
Q5	8-729-119-76	TRANSISTOR 2SA1175-HFE	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
Q6	8-729-900-80	TRANSISTOR DTC114ES	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
Q7	8-729-900-80	TRANSISTOR DTC114ES	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
Q8	8-729-900-80	TRANSISTOR DTC114ES	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
Q9	8-729-119-78	TRANSISTOR 2SC2785-HFE	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
Q15	8-729-231-20	TRANSISTOR 2SK161-YGR	(H450:E,AUS,EA,MY,SP)
Q21	8-729-202-67	TRANSISTOR 2SK246-GR3	
Q22	8-729-201-84	TRANSISTOR 2SC3112-B	
Q23	8-729-202-67	TRANSISTOR 2SK246-GR3	(H450:AEP/H450M:AEP,EE,UK)
Q24	8-729-201-84	TRANSISTOR 2SC3112-B	(H450:AEP/H450M:AEP,EE,UK)
Q53	8-729-900-80	TRANSISTOR DTC114ES	

Ref.No.	Part No.	Description	Remark
Q201	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q202	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q203	8-729-900-80	TRANSISTOR DTC114ES	
Q204	8-729-900-61	TRANSISTOR DTA114ES	
Q205	8-729-900-61	TRANSISTOR DTA114ES	
Q221	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q251	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q252	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q291	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q301	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q401	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q407	8-729-900-89	TRANSISTOR DTC144ES	
Q408	8-729-900-89	TRANSISTOR DTC144ES	
Q409	8-729-900-89	TRANSISTOR DTC144ES	
Q410	8-729-900-65	TRANSISTOR DTA144ES	
Q411	8-729-900-89	TRANSISTOR DTC144ES	
Q412	8-729-900-89	TRANSISTOR DTC144ES	
Q451	8-729-194-57	TRANSISTOR 2SC945-P	
Q452	8-729-194-57	TRANSISTOR 2SC945-P	
Q453	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q454	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q620	8-729-900-80	TRANSISTOR DTC114ES	(H450:E,AUS,EA,MY,SP)
Q630	8-729-900-80	TRANSISTOR DTC114ES	(H450:E,AUS,EA,MY,SP)
		< RESISTOR >	
R1	1-249-411-11	CARBON 330 5% 1/4W	
R2	1-249-411-11	CARBON 330 5% 1/4W	
R3	1-247-891-00	CARBON 330K 5% 1/4W	
R4	1-249-411-11	CARBON 330 5% 1/4W	
R5	1-247-891-00	CARBON 330K 5% 1/4W	(H450:G,IT)
R6	1-249-411-11	CARBON 330 5% 1/4W	(H450:G,IT)
R7	1-249-406-11	CARBON 120 5% 1/4W	
R8	1-249-429-11	CARBON 10K 5% 1/4W	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
R9	1-249-429-11	CARBON 10K 5% 1/4W	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
R10	1-249-437-11	CARBON 47K 5% 1/4W	
R11	1-249-429-11	CARBON 10K 5% 1/4W	
R12	1-249-425-11	CARBON 4.7K 5% 1/4W	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
R13	1-249-437-11	CARBON 47K 5% 1/4W	(H450:AEP/H450M:AEP,EE,UK)
R13	1-247-903-00	CARBON 1M 5% 1/4W	(H450:E,AUS,EA,MY,SP)
R14	1-249-429-11	CARBON 10K 5% 1/4W	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
R15	1-247-807-31	CARBON 100 5% 1/4W	
R17	1-247-903-00	CARBON 1M 5% 1/4W	(H450:AEP/H450M:AEP,EE,UK)
R18	1-249-429-11	CARBON 10K 5% 1/4W	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
R19	1-249-429-11	CARBON 10K 5% 1/4W	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
R21	1-249-417-11	CARBON 1K 5% 1/4W	
R22	1-249-417-11	CARBON 1K 5% 1/4W	
R23	1-249-417-11	CARBON 1K 5% 1/4W	
R24	1-247-807-31	CARBON 100 5% 1/4W	
R25	1-249-425-11	CARBON 4.7K 5% 1/4W	
R26	1-249-417-11	CARBON 1K 5% 1/4W	
R27	1-249-409-11	CARBON 220 5% 1/4W	
R28	1-247-807-31	CARBON 100 5% 1/4W	
R30	1-249-423-11	CARBON 3.3K 5% 1/4W	
R31	1-249-414-11	CARBON 560 5% 1/4W	
R32	1-249-417-11	CARBON 1K 5% 1/4W	
R33	1-249-410-11	CARBON 270 5% 1/4W	
R34	1-249-425-11	CARBON 4.7K 5% 1/4W	
R35	1-249-421-11	CARBON 2.2K 5% 1/4W	
R36	1-249-425-11	CARBON 4.7K 5% 1/4W	
R37	1-249-425-11	CARBON 4.7K 5% 1/4W	
R38	1-247-807-31	CARBON 100 5% 1/4W	
R39	1-249-423-11	CARBON 3.3K 5% 1/4W	(H450:AEP/H450M:AEP,EE,UK)
R40	1-249-414-11	CARBON 560 5% 1/4W	(H450:AEP/H450M:AEP,EE,UK)
R41	1-249-417-11	CARBON 1K 5% 1/4W	(H450:AEP/H450M:AEP,EE,UK)
R42	1-249-410-11	CARBON 270 5% 1/4W	(H450:AEP/H450M:AEP,EE,UK)
R43	1-249-433-11	CARBON 22K 5% 1/4W	(H450:AEP/H450M:AEP,EE,UK)
R44	1-249-421-11	CARBON 2.2K 5% 1/4W	(H450:AEP/H450M:AEP,EE,UK)
R45	1-249-425-11	CARBON 4.7K 5% 1/4W	(H450:AEP/H450M:AEP,EE,UK)
R46	1-249-425-11	CARBON 4.7K 5% 1/4W	(H450:AEP/H450M:AEP,EE,UK)
R47	1-249-417-11	CARBON 1K 5% 1/4W	(H450:AEP,E,AUS,EA,MY,SP/H450M:AEP,EE,UK)
R52	1-249-423-11	CARBON 3.3K 5% 1/4W	
R53	1-247-822-11	CARBON 430 5% 1/4W	
R54	1-247-870-11	CARBON 43K 5% 1/4W	
R55	1-249-429-11	CARBON 10K 5% 1/4W	
R56	1-247-842-11	CARBON 3K 5% 1/4W	
R57	1-249-423-11	CARBON 3.3K 5% 1/4W	
R58	1-249-437-11	CARBON 47K 5% 1/4W	
R61	1-249-418-11	CARBON 1.2K 5% 1/4W	
R62	1-249-418-11	CARBON 1.2K 5% 1/4W	
R65	1-249-429-11	CARBON 10K 5% 1/4W	
R66	1-249-429-11	CARBON 10K 5% 1/4W	

MAIN

Ref.No.	Part No.	Description				Remark
R67	1-249-437-11	CARBON	47K	5%	1/4W	
R69	1-249-399-11	CARBON	33	5%	1/4W	
R70	1-249-413-11	CARBON	470	5%	1/4W	
R91	1-247-807-31	CARBON	100	5%	1/4W	
R201	1-249-425-11	CARBON	4.7K	5%	1/4W	
R202	1-249-411-11	CARBON	330	5%	1/4W	
R203	1-249-416-11	CARBON	820	5%	1/4W	
R204	1-247-842-11	CARBON	3K	5%	1/4W	
R205	1-249-420-11	CARBON	1.8K	5%	1/4W	
R206	1-249-424-11	CARBON	3.9K	5%	1/4W	
R207	1-249-420-11	CARBON	1.8K	5%	1/4W	
R208	1-247-838-00	CARBON	2K	5%	1/4W	
R209	1-249-417-11	CARBON	1K	5%	1/4W	
R210	1-249-441-11	CARBON	100K	5%	1/4W	
R211	1-249-417-11	CARBON	1K	5%	1/4W	
R212	1-249-425-11	CARBON	4.7K	5%	1/4W	
R215	1-249-411-11	CARBON	330	5%	1/4W	
R221	1-249-429-11	CARBON	10K	5%	1/4W	
R223	1-249-429-11	CARBON	10K	5%	1/4W	
R224	1-249-425-11	CARBON	4.7K	5%	1/4W	
R225	1-249-417-11	CARBON	1K	5%	1/4W	
R226	1-249-417-11	CARBON	1K	5%	1/4W	
R227	1-249-417-11	CARBON	1K	5%	1/4W	
R228	1-249-417-11	CARBON	1K	5%	1/4W	
R229	1-249-413-11	CARBON	470	5%	1/4W	
R230	1-249-413-11	CARBON	470	5%	1/4W	
R231	1-249-417-11	CARBON	1K	5%	1/4W	
R232	1-247-807-31	CARBON	100	5%	1/4W	
R233	1-249-413-11	CARBON	470	5%	1/4W	
R234	1-249-413-11	CARBON	470	5%	1/4W	
R235	1-249-413-11	CARBON	470	5%	1/4W	
R236	1-249-413-11	CARBON	470	5%	1/4W	
R237	1-249-437-11	CARBON	47K	5%	1/4W	
R251	1-249-425-11	CARBON	4.7K	5%	1/4W	
R252	1-249-411-11	CARBON	330	5%	1/4W	
R253	1-249-416-11	CARBON	820	5%	1/4W	
R254	1-247-842-11	CARBON	3K	5%	1/4W	
R255	1-249-420-11	CARBON	1.8K	5%	1/4W	
R256	1-249-424-11	CARBON	3.9K	5%	1/4W	
R257	1-249-420-11	CARBON	1.8K	5%	1/4W	
R258	1-247-838-00	CARBON	2K	5%	1/4W	
R259	1-249-417-11	CARBON	1K	5%	1/4W	
R260	1-249-441-11	CARBON	100K	5%	1/4W	
R261	1-249-417-11	CARBON	1K	5%	1/4W	
R262	1-249-425-11	CARBON	4.7K	5%	1/4W	
R265	1-249-411-11	CARBON	330	5%	1/4W	
R280	1-249-429-11	CARBON	10K	5%	1/4W	
R281	1-249-431-11	CARBON	15K	5%	1/4W	
R282	1-249-434-11	CARBON	27K	5%	1/4W	
R283	1-249-434-11	CARBON	27K	5%	1/4W	
R291	1-249-437-11	CARBON	47K	5%	1/4W	
R292	1-249-424-11	CARBON	3.9K	5%	1/4W	
R293	1-249-417-11	CARBON	1K	5%	1/4W	
⚠R299	1-212-950-00	FUSIBLE	4.7	5%	1/2W	F
R301	1-247-889-00	CARBON	270K	5%	1/4W	
R302	1-249-404-00	CARBON	82	5%	1/4W	
R303	1-247-882-11	CARBON	130K	5%	1/4W	
R304	1-247-850-11	CARBON	6.2K	5%	1/4W	
R311	1-247-889-00	CARBON	270K	5%	1/4W	
R312	1-249-404-00	CARBON	82	5%	1/4W	
R313	1-247-882-11	CARBON	130K	5%	1/4W	
R314	1-247-850-11	CARBON	6.2K	5%	1/4W	
R316	1-249-433-11	CARBON	22K	5%	1/4W	
R321	1-249-429-11	CARBON	10K	5%	1/4W	
R322	1-249-431-11	CARBON	15K	5%	1/4W	
R323	1-249-423-11	CARBON	3.3K	5%	1/4W	
R324	1-249-417-11	CARBON	1K	5%	1/4W	
R325	1-249-414-11	CARBON	560	5%	1/4W	
R326	1-249-425-11	CARBON	4.7K	5%	1/4W	
R327	1-249-433-11	CARBON	22K	5%	1/4W	
R328	1-249-417-11	CARBON	1K	5%	1/4W	
R331	1-249-430-11	CARBON	12K	5%	1/4W	
R350	1-249-431-11	CARBON	15K	5%	1/4W	
R351	1-249-431-11	CARBON	15K	5%	1/4W	
R355	1-249-431-11	CARBON	15K	5%	1/4W	
R366	1-249-429-11	CARBON	10K	5%	1/4W	
R367	1-249-429-11	CARBON	10K	5%	1/4W	
R368	1-249-425-11	CARBON	4.7K	5%	1/4W	
R369	1-249-425-11	CARBON	4.7K	5%	1/4W	
R370	1-249-429-11	CARBON	10K	5%	1/4W	
R401	1-247-889-00	CARBON	270K	5%	1/4W	
R402	1-249-404-00	CARBON	82	5%	1/4W	
R403	1-247-882-11	CARBON	130K	5%	1/4W	
R404	1-247-850-11	CARBON	6.2K	5%	1/4W	
R411	1-247-889-00	CARBON	270K	5%	1/4W	
R412	1-249-404-00	CARBON	82	5%	1/4W	
R413	1-247-882-11	CARBON	130K	5%	1/4W	
R414	1-247-850-11	CARBON	6.2K	5%	1/4W	
R416	1-249-433-11	CARBON	22K	5%	1/4W	
R421	1-249-429-11	CARBON	10K	5%	1/4W	
R422	1-249-431-11	CARBON	15K	5%	1/4W	
R423	1-249-423-11	CARBON	3.3K	5%	1/4W	
R424	1-249-417-11	CARBON	1K	5%	1/4W	
R425	1-249-414-11	CARBON	560	5%	1/4W	
R426	1-249-425-11	CARBON	4.7K	5%	1/4W	
R427	1-249-433-11	CARBON	22K	5%	1/4W	
R428	1-249-417-11	CARBON	1K	5%	1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les components identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description	Remark
R431	1-249-430-11	CARBON 12K 5% 1/4W	
R441	1-249-433-11	CARBON 22K 5% 1/4W	
R442	1-247-807-31	CARBON 100 5% 1/4W	
R443	1-249-433-11	CARBON 22K 5% 1/4W	
R444	1-249-425-11	CARBON 4.7K 5% 1/4W	
R445	1-249-437-11	CARBON 47K 5% 1/4W	
R446	1-249-421-11	CARBON 2.2K 5% 1/4W	
R447	1-249-421-11	CARBON 2.2K 5% 1/4W	
R448	1-249-433-11	CARBON 22K 5% 1/4W	
R449	1-249-438-11	CARBON 56K 5% 1/4W	
R450	1-249-437-11	CARBON 47K 5% 1/4W	
R451	1-249-389-11	CARBON 4.7 5% 1/4W	
R452	1-249-425-11	CARBON 4.7K 5% 1/4W	
R453	1-249-409-11	CARBON 220 5% 1/4W	
R454	1-249-409-11	CARBON 220 5% 1/4W	F
R461	1-249-432-11	CARBON 18K 5% 1/4W	
R462	1-247-876-11	CARBON 75K 5% 1/4W	
R463	1-249-432-11	CARBON 18K 5% 1/4W	
R464	1-249-437-11	CARBON 47K 5% 1/4W	
R465	1-249-437-11	CARBON 47K 5% 1/4W	
R466	1-249-437-11	CARBON 47K 5% 1/4W	
R467	1-247-864-11	CARBON 24K 5% 1/4W	
R468	1-249-433-11	CARBON 22K 5% 1/4W	(H450:AEP,G,IT/H450M:CND,AEP,EE,UK)
R469	1-249-433-11	CARBON 22K 5% 1/4W	
R470	1-249-433-11	CARBON 22K 5% 1/4W	
R471	1-249-424-11	CARBON 3.9K 5% 1/4W	
R472	1-249-429-11	CARBON 10K 5% 1/4W	
R473	1-249-434-11	CARBON 27K 5% 1/4W	
R474	1-249-434-11	CARBON 27K 5% 1/4W	
R476	1-249-430-11	CARBON 12K 5% 1/4W	(H450:AEP/H450M:AEP,EE,UK)
R476	1-247-856-00	CARBON 11K 5% 1/4W	(H450:G,IT,E,AUS,EA,MY,SP/H450M:US,CND)
R478	1-249-433-11	CARBON 22K 5% 1/4W	(H450:E,AUS,EA,MY,SP/H450M:US)
R479	1-249-433-11	CARBON 22K 5% 1/4W	
⚠R481	1-215-905-11	METAL OXIDE 10 5% 3W	F
R482	1-249-427-11	CARBON 6.8K 5% 1/4W	
R483	1-249-418-11	CARBON 1.2K 5% 1/4W	
R484	1-249-441-11	CARBON 100K 5% 1/4W	(H450:AEP/H450M:AEP,EE,UK)
R485	1-249-437-11	CARBON 47K 5% 1/4W	(H450:AEP/H450M:AEP,UK)
R493	1-249-425-11	CARBON 4.7K 5% 1/4W	
R495	1-247-883-00	CARBON 150K 5% 1/4W	
R496	1-247-887-00	CARBON 220K 5% 1/4W	
R613	1-249-427-11	CARBON 6.8K 5% 1/4W	(H450:E,AUS,EA,MY,SP/H450M:US,CND)
R614	1-249-427-11	CARBON 6.8K 5% 1/4W	(H450:E,AUS,EA,MY,SP/H450M:US,CND)
R620	1-249-439-11	CARBON 68K 5% 1/4W	(H450:E,AUS,EA,MY,SP)
R621	1-249-437-11	CARBON 47K 5% 1/4W	
R622	1-249-431-11	CARBON 15K 5% 1/4W	(H450:E,AUS,EA,MY,SP)
R623	1-249-437-11	CARBON 47K 5% 1/4W	
R630	1-249-439-11	CARBON 68K 5% 1/4W	(H450:E,AUS,EA,MY,SP)
R631	1-249-437-11	CARBON 47K 5% 1/4W	
R632	1-249-431-11	CARBON 15K 5% 1/4W	(H450:E,AUS,EA,MY,SP)
R633	1-249-437-11	CARBON 47K 5% 1/4W	
R730	1-249-425-11	CARBON 4.7K 5% 1/4W	
R731	1-249-425-11	CARBON 4.7K 5% 1/4W	
R732	1-249-412-11	CARBON 390 5% 1/4W	
R733	1-249-412-11	CARBON 390 5% 1/4W	
R734	1-249-389-11	CARBON 4.7 5% 1/4W	(H450:G,IT)
R735	1-249-389-11	CARBON 4.7 5% 1/4W	(H450:G,IT)
R750	1-249-425-11	CARBON 4.7K 5% 1/4W	(H450:AEP,G,IT/H450M:AEP,EE,UK)
R750	1-249-433-11	CARBON 22K 5% 1/4W	(H450:E,AUS,EA,MY,SP/H450M:US,CND)
R751	1-249-437-11	CARBON 47K 5% 1/4W	(H450:AEP,G,IT/H450M:AEP,EE,UK)
R751	1-249-439-11	CARBON 68K 5% 1/4W	(H450M:US,CND)
R752	1-249-415-11	CARBON 680 5% 1/4W	(H450:AEP,G,IT/H450M:AEP,EE,UK)
R753	1-247-897-11	CARBON 560K 5% 1/4W	(H450:AEP,G,IT/H450M:AEP,EE,UK)
R754	1-249-437-11	CARBON 47K 5% 1/4W	(H450:AEP,G,IT/H450M:AEP,EE,UK)
R770	1-249-425-11	CARBON 4.7K 5% 1/4W	(H450:AEP,G,IT/H450M:AEP,EE,UK)
R770	1-249-433-11	CARBON 22K 5% 1/4W	(H450:E,AUS,EA,MY,SP/H450M:US,CND)
R771	1-249-437-11	CARBON 47K 5% 1/4W	(H450:AEP,G,IT/H450M:AEP,EE,UK)
R771	1-249-439-11	CARBON 68K 5% 1/4W	(H450M:US,CND)
R772	1-249-415-11	CARBON 680 5% 1/4W	(H450:AEP,G,IT/H450M:AEP,EE,UK)
R773	1-247-897-11	CARBON 560K 5% 1/4W	(H450:AEP,G,IT/H450M:AEP,EE,UK)
R774	1-249-437-11	CARBON 47K 5% 1/4W	(H450:AEP,G,IT/H450M:AEP,EE,UK)
R780	1-249-429-11	CARBON 10K 5% 1/4W	
R781	1-249-429-11	CARBON 10K 5% 1/4W	
R785	1-249-437-11	CARBON 47K 5% 1/4W	(H450M:EE)
R1001	1-247-807-31	CARBON 100 5% 1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les components identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

MAIN POWER

Ref.No.	Part No.	Description	Remark
		< VARIABLE RESISTOR >	
RV51	1-238-019-11	RES, ADJ, CARBON 47K	
RV301	1-241-630-11	RES, ADJ, CARBON 10K	
RV303	1-241-630-11	RES, ADJ, CARBON 10K	
RV304	1-241-767-21	RES, ADJ, CARBON 100K	
RV311	1-241-630-11	RES, ADJ, CARBON 10K	
RV401	1-241-630-11	RES, ADJ, CARBON 10K	
RV403	1-241-630-11	RES, ADJ, CARBON 10K	
RV404	1-241-767-21	RES, ADJ, CARBON 100K	
RV411	1-241-630-11	RES, ADJ, CARBON 10K	
RV451	1-241-628-11	RES, ADJ, CARBON 2.2K	
RV730	1-223-608-11	RES, VAR, CARBON 100K/100K	
		< SWITCH >	
S301	1-572-185-11	SWITCH, SLIDE (1SS)(H450:AEP/H450M:AEP,EE,UK)	
		< TRANSFORMER >	
T1	1-409-505-11	COIL (ANT. SW3) (H450:E,AUS,EA,MY,SP)	
T2	1-402-960-11	COIL (OSC SW3) (H450:E,AUS,EA,MY,SP)	
T51	1-236-465-11	ENCAPSULATED COMPONENT (H450:G,IT)	
T401	1-433-349-11	TRANSFORMER, BIAS OSCILLATION	
		< TERMINAL >	
TB1	1-537-488-11	TERMINAL BOARD (ANTENNA) (H450:AEP,G,IT/H450M:AEP,EE,UK)	
TB1	1-537-238-21	TERMINAL BOARD (ANTENNA) (H450:E,AUS,EA,MY,SP/H450M:US,CND)	
TM730	1-537-238-11	TERMINAL BOARD (SPEAKER)	
		< VIBRATOR >	
X21	1-579-585-11	VIBRATOR, CRYSTAL (7.2MHz)	
X51	1-579-777-11	DISCRIMINATOR, CERAMIC (10.7MHz)	
X52	1-577-075-11	OSCILLATOR, CERAMIC (456kHz)	
X351	1-579-125-11	VIBRATOR, CERAMIC (8MHz)	

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*	A-4369-111-A	POWER BOARD, COMPLETE (H450:AEP,AUS/H450M:AEP,EE)	
*	A-4369-104-A	POWER BOARD, COMPLETE (H450M:UK)	
*	A-4369-110-A	POWER BOARD, COMPLETE (H450M:US)	
*	A-4369-121-A	POWER BOARD, COMPLETE (H450:E,EA,MY,SP)	
*	A-4369-122-A	POWER BOARD, COMPLETE (H450M:G,IT)	
*	A-4371-249-A	POWER BOARD, COMPLETE (H450M:CND)	

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*	4-925-530-01	PLATE, GROUND (H450/H450M:US,CND,AEP,EE)	

Ref.No.	Part No.	Description			Remark	
		< CAPACITOR >				
C802	1-124-925-11	ELECT	2.2uF	20%	100V	
C803	1-162-282-31	CERAMIC	100PF	10%	50V	
C804	1-126-233-11	ELECT	22uF	20%	50V	
C805	1-126-964-11	ELECT	10uF	20%	50V	
C807	1-164-159-11	CERAMIC	0.1uF		50V	
C808	1-164-159-11	CERAMIC	0.1uF		50V	
C809	1-162-282-31	CERAMIC	100PF	10%	50V	
C810	1-126-964-11	ELECT	10uF	20%	50V	
C811	1-126-933-11	ELECT	100uF	20%	16V	
C812	1-126-933-11	ELECT	100uF	20%	16V	
C852	1-124-925-11	ELECT	2.2uF	20%	100V	
C853	1-162-282-31	CERAMIC	100PF	10%	50V	
C854	1-126-233-11	ELECT	22uF	20%	50V	
C855	1-126-964-11	ELECT	10uF	20%	50V	
C857	1-164-159-11	CERAMIC	0.1uF		50V	
C858	1-164-159-11	CERAMIC	0.1uF		50V	
C859	1-162-282-31	CERAMIC	100PF	10%	50V	
C860	1-126-964-11	ELECT	10uF	20%	50V	
C901	1-126-954-11	ELECT	3300uF	20%	35V	
C902	1-126-953-11	ELECT	2200uF	20%	35V	
C903	1-164-159-11	CERAMIC	0.1uF		50V	
C904	1-164-159-11	CERAMIC	0.1uF		50V	
C905	1-164-159-11	CERAMIC	0.1uF		50V	
C910	1-126-964-11	ELECT	10uF	20%	50V	
C911	1-126-964-11	ELECT	10uF	20%	50V	
C912	1-124-927-11	ELECT	4.7uF	20%	100V	
C913	1-124-927-11	ELECT	4.7uF	20%	100V	
C914	1-124-903-11	ELECT	1uF	20%	50V	
C915	1-124-927-11	ELECT	4.7uF	20%	100V	
C916	1-124-927-11	ELECT	4.7uF	20%	100V	
C917	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C918	1-126-964-11	ELECT	10uF	20%	50V	
C919	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C920	1-126-964-11	ELECT	10uF	20%	50V	
C921	1-126-969-11	ELECT	220uF	20%	50V	
C922	1-164-159-11	CERAMIC	0.1uF		50V	
C923	1-164-159-11	CERAMIC	0.1uF		50V	
C924	1-126-964-11	ELECT	10uF	20%	50V	
C925	1-126-964-11	ELECT	10uF	20%	50V	
C926	1-126-964-11	ELECT	10uF	20%	50V	
C9001	1-161-379-00	CERAMIC	0.01uF	20%	25V	(H450/H450M:US,CND,AEP,EE)
C9002	1-161-379-00	CERAMIC	0.01uF	20%	25V	(H450:G,IT)
C9003	1-161-379-00	CERAMIC	0.01uF	20%	25V	(H450:G,IT)
		< CONNECTOR >				
CN901	1-695-657-11	CONNECTOR, FFC/FPC 9P				

Ref.No.	Part No.	Description	Remark
*CN902	1-568-950-11	PIN, CONNECTOR 12P	
*CN903	1-580-230-31	PIN, CONNECTOR (PC BOARD) 2P	

< DIODE >

Ref.No.	Part No.	Description	Remark
D801	8-719-987-63	DIODE 1N4148M	
D802	8-719-987-63	DIODE 1N4148M	
D901	8-719-933-41	DIODE HZS6C3L	
D902	8-719-933-50	DIODE HZS7C2L	
D903	8-719-200-82	DIODE 11ES2	
D904	8-719-934-22	DIODE HZS30-2L	
D905	8-719-014-74	DIODE UZP-6.2B	
D906	8-719-312-09	DIODE RBA-402	

< FUSE >

Ref.No.	Part No.	Description	Remark
⚠F901	1-532-285-00	FUSE (T1.25A/250V)	(H450:E,EA,MY,SP)
⚠F901	1-576-101-11	FUSE (1.25A/250V)	(H450M:US,CND,)
⚠F902	1-532-215-00	FUSE (T0.8A/250V)	(H450/H450M:AEP,EE,UK)
⚠F912	1-532-783-41	FUSE (5A)	(H450M:US)
⚠F913	1-532-783-41	FUSE (5A)	(H450M:US)

< FERRITE BEAD >

Ref.No.	Part No.	Description	Remark
*FB901	1-410-858-11	INDUCTOR 0UH	(H450:G,IT)
*FB903	1-410-858-11	INDUCTOR 0UH	(H450:G,IT)

< FUSE HOLDER >

Ref.No.	Part No.	Description	Remark
FH901	1-533-217-31	HOLDER, FUSE	(H450M:US,CND)
FH902	1-533-217-31	HOLDER, FUSE	(H450M:US,CND)
FH903	1-533-217-31	HOLDER, FUSE	(H450/H450M:AEP,EE,UK)
FH904	1-533-217-31	HOLDER, FUSE	(H450/H450M:AEP,EE,UK)

< IC >

Ref.No.	Part No.	Description	Remark
IC801	8-759-502-31	IC SI-18751	
IC851	8-759-502-31	IC SI-18751	
IC901	8-759-602-66	IC M5230L-A	

< IC LINK >

Ref.No.	Part No.	Description	Remark
⚠ICP912	1-532-847-21	LINK, IC	(H450/H450M:AEP,EE)
⚠ICP913	1-532-847-21	LINK, IC	(H450/H450M:AEP,EE)

< TRANSISTOR >

Ref.No.	Part No.	Description	Remark
Q801	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q802	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q803	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q804	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q901	8-729-209-15	TRANSISTOR 2SD2012	
Q902	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q903	8-729-900-80	TRANSISTOR DTC114ES	
Q904	8-729-209-15	TRANSISTOR 2SD2012	
Q905	8-729-209-15	TRANSISTOR 2SD2012	
Q906	8-729-141-83	TRANSISTOR 2SB1094-LK	

< RESISTOR >

Ref.No.	Part No.	Description	Remark
R801	1-249-417-11	CARBON 1K 5% 1/4W	
R802	1-249-437-11	CARBON 47K 5% 1/4W	
R803	1-249-435-11	CARBON 33K 5% 1/4W	
R804	1-249-416-11	CARBON 820 5% 1/4W	
R805	1-247-903-00	CARBON 1M 5% 1/4W	
R806	1-249-438-11	CARBON 56K 5% 1/4W	
R809	1-249-389-11	CARBON 4.7 5% 1/4W	(H450/H450M:AEP,EE,UK)
R809	1-249-381-11	CARBON 1 5% 1/4W	(H450M:CND)
R810	1-249-441-11	CARBON 100K 5% 1/4W	
R811	1-249-389-11	CARBON 4.7 5% 1/4W	
R812	1-249-438-11	CARBON 56K 5% 1/4W	
R851	1-249-417-11	CARBON 1K 5% 1/4W	
R852	1-249-437-11	CARBON 47K 5% 1/4W	
R853	1-249-435-11	CARBON 33K 5% 1/4W	
R854	1-249-416-11	CARBON 820 5% 1/4W	
R855	1-247-903-00	CARBON 1M 5% 1/4W	
R856	1-249-437-11	CARBON 47K 5% 1/4W	
R859	1-249-389-11	CARBON 4.7 5% 1/4W	(H450/H450M:US,AEP,EE,UK)
R859	1-249-381-11	CARBON 1 5% 1/4W	(H450M:CND)
R901	1-247-807-31	CARBON 100 5% 1/4W	
R902	1-249-432-11	CARBON 18K 5% 1/4W	
R903	1-247-856-00	CARBON 11K 5% 1/4W	
R904	1-249-432-11	CARBON 18K 5% 1/4W	
R905	1-247-842-11	CARBON 3K 5% 1/4W	
R906	1-249-425-11	CARBON 4.7K 5% 1/4W	
R907	1-249-414-11	CARBON 560 5% 1/4W	
R908	1-249-429-11	CARBON 10K 5% 1/4W	
R909	1-249-422-11	CARBON 2.7K 5% 1/4W	
R910	1-247-903-00	CARBON 1M 5% 1/4W	
R911	1-202-725-00	SOLID 3.3M 10% 1/2W	(H450M:US,CND)
⚠R912	1-219-134-11	FUSIBLE 0.1 10% 1/4W F	(H450M:UK)
⚠R913	1-219-134-11	FUSIBLE 0.1 10% 1/4W F	(H450M:UK)
⚠R914	1-212-849-00	FUSIBLE 4.7 5% 1/4W F	(H450M:US)
⚠R914	1-212-934-00	FUSIBLE 1 5% 1/2W F	(H450/H450M:CND,AEP,EE,UK)
⚠R915	1-212-934-00	FUSIBLE 1 5% 1/2W F	(H450/H450M:AEP,EE,UK)
⚠R915	1-212-851-00	FUSIBLE 5.6 5% 1/4W F	(H450M:US,CND)
⚠R916	1-212-934-00	FUSIBLE 1 5% 1/2W F	(H450/H450M:AEP,EE,UK)
⚠R916	1-212-849-00	FUSIBLE 4.7 5% 1/4W F	(H450M:US,CND)
⚠R917	1-202-972-61	FUSIBLE 1 5% 1/4W F	
⚠R918	1-202-972-61	FUSIBLE 1 5% 1/4W F	
⚠R919	1-212-934-00	FUSIBLE 1 5% 1/2W F	

< RELAY >

Ref.No.	Part No.	Description	Remark
RY801	1-515-920-11	RELAY (24V)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les components identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

POWER

Ref.No.	Part No.	Description	Remark
		< SWITCH >	
⚠S901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGESELECTOR) (H450:E,EA,MY,SP)	
		< TRANSFORMER >	
⚠T901	1-426-656-11	TRANSFORMER, POWER (H450:AUS/H450M:UK)	
⚠T901	1-426-657-11	TRANSFORMER, POWER (H450:AEP,G,IT/H450M:AEP,EE)	
⚠T901	1-426-658-11	TRANSFORMER, POWER (H450M:US,CND)	
⚠T901	1-426-659-11	TRANSFORMER, POWER (H450:E,EA,MY,SP)	

* * *

MISCELLANEOUS

Ref.No.	Part No.	Description	Remark
9	1-501-594-21	ANTENNA (FM) (H450:G,IT)	
62	1-765-125-11	WIRE (FLAT TYPE) (9 CORE)	
63	1-765-124-11	WIRE (FLAT TYPE)	
⚠65	1-569-007-11	ADAPTER, CONVERSION 2P (H450:E,AUS)	
⚠66	1-569-008-11	ADAPTER, CONVERSION 2P (H450:EA,MY,SP)	
253	1-452-719-11	MAGNET ASSY	
⚠305	8-848-144-11	DEVICE, OPTICAL KSS-240A	
306	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
ANT1	1-501-321-51	ANTENNA, TELESCOPIC (H450)	
⚠CNP901	1-558-943-41	CORD, POWER (H450:E)	
⚠CNP901	1-575-042-31	CORD, POWER (H450M:US,CND)	
⚠CNP901	1-575-651-91	CORD, POWER (H450:AEP,G,IT,EA,MY,SP/H450M:AEP,EE)	
⚠CNP901	1-696-846-21	CORD, POWER (H450:AUS)	
⚠CNP901	1-751-522-21	CORD, POWER (H450M:UK)	
HE1	1-543-673-11	HEAD, MAGNETIC (ERASE) (DECK:B)	
HP1	1-543-319-11	HEAD, MAGNETIC (PB) (DECK:A)	
HRP1	1-543-319-11	HEAD, MAGNETIC (REC/PB) (DECK:B)	
M1	X-3362-377-1	MOTOR (WH) ASSY	
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)	
M301	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M302	X-4917-504-1	MOTOR ASSY (SLED)	
⚠T901	1-426-656-11	TRANSFORMER, POWER (H450:AUS/H450M:UK)	
⚠T901	1-426-657-11	TRANSFORMER, POWER (H450:AEP,G,IT/H450M:AEP,EE)	
⚠T901	1-426-658-11	TRANSFORMER, POWER (H450M:US,CND)	
⚠T901	1-426-659-11	TRANSFORMER, POWER (H450:E,EA,MY,SP)	

* * *

ACCESSORIES & PACKING MATERIALS

Ref.No.	Part No.	Description	Remark
*	3-376-136-01	CUSHION (HALF)	
*	4-965-152-01	CUSHION (FRONT) (US, CND, AEP, UK)	
*	4-965-153-01	CUSHION (REAR) (US, CND, AEP, UK)	

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HARDWARE LIST

Ref.No.	Part No.	Description	Remark
#1	7-621-255-10	SCREW +PTT 2X3 (S)	
#2	7-621-255-25	SCREW +PTT 2X4 (S)	
#3	7-621-775-20	SCREW +B 2.6X5	
#4	7-623-921-01	RING, RETAINING, CAPSTAN	
#5	7-682-547-09	SCREW +BVTT 3X6 (S)	
#6	7-682-550-09	SCREW +BVTT 3X12 (S) (H450)	
#7	7-685-133-19	SCREW +P 2.6X6 TYPE2	
#8	7-685-533-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#9	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
#10	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#11	7-685-870-01	SCREW +BVTT 3X5 (S)	
#12	7-688-001-01	W 2, SMALL	
#13	7-621-255-15	SCREW +P 2X3	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les components identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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